

SONY®

VIDEOCASSETTE RECORDER

BVW-55



MAINTENANCE MANUAL Part 1

1st Edition

Serial No. 10001 and Higher

警告

このマニュアルは、サービス専用です。

お客様が、このマニュアルに記載された設置や保守、点検、修理などを行うと感電や火災、人身事故につながる可能性があります。

危険をさけるため、サービストレーニングを受けた技術者のみご使用ください。

WARNING

This manual is intended for qualified service personnel only.

To reduce the risk of electric shock, fire or injury, do not perform any servicing other than that contained in the operating instructions unless you are qualified to do so. Refer all servicing to qualified service personnel.

WARNUNG

Die Anleitung ist nur für qualifiziertes Fachpersonal bestimmt.

Alle Wartungsarbeiten dürfen nur von qualifiziertem Fachpersonal ausgeführt werden. Um die Gefahr eines elektrischen Schlages, Feuergefahr und Verletzungen zu vermeiden, sind bei Wartungsarbeiten strikt die Angaben in der Anleitung zu befolgen. Andere als die angegeben Wartungsarbeiten dürfen nur von Personen ausgeführt werden, die eine spezielle Befähigung dazu besitzen.

AVERTISSEMENT

Ce manuel est destiné uniquement aux personnes compétentes en charge de l'entretien. Afin de réduire les risques de décharge électrique, d'incendie ou de blessure n'effectuer que les réparations indiquées dans le mode d'emploi à moins d'être qualifié pour en effectuer d'autres. Pour toute réparation faire appel à une personne compétente uniquement.

CAUTION

Danger of explosion if battery is incorrectly replaced.

Replace only with the same or equivalent type recommended by the manufacturer.
Dispose of used batteries according to the manufacturer's instructions.

Vorsicht!

Explosionsgefahr bei unsachgemäßem Austausch der Batterie.

Ersatz nur durch denselben oder einen vom Hersteller empfohlenen ähnlichen Typ.
Entsorgung gebrauchter Batterien nach Angaben des Herstellers.

ATTENTION

Il y a danger d'explosion s'il y a remplacement incorrect de la batterie.

Remplacer uniquement avec une batterie du même type ou d'un type équivalent recommandé par le constructeur.

Mettre au rebut les batteries usagées conformément aux instructions du fabricant.

ADVARSEL!

Lithiumbatteri-Eksplosionsfare ved fejlagtig håndtering.

Udskiftning må kun ske med batteri af samme fabrikat og type.
Levér det brugte batteri tilbage til leverandøren.

For the customers in the U.S.A. and Canada

RECYCLING NICKEL-CADMIUM BATTERIES

Nickel Cadmium batteries are recyclable. You can help preserve our environment by returning your unwanted batteries to your nearest point for collection, recycling or proper disposal.
Note: In some areas the disposal of nickel cadmium batteries in household or business trash may be prohibited.



RBRC (Rechargeable Battery Recycling Corporation) advises you about spent battery collection by the following phone number.

Call toll free number: 1-800-822-8837
(United States and Canada only)

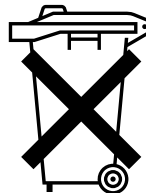
Caution: Do not handle damaged or leaking nickel-cadmium batteries.

Voor de klanten in Nederland

Dit apparaat bevat een MnO₂-Li batterij voor memory back-up.

Raadpleeg uw leverancier over de verwijdering van de batterij op het moment dat u het apparaat bij einde levensduur afdankt.

Gooi de batterij niet weg, maar lever hem in als KCA.



Bij dit produkt zijn batterijen geleverd.
Wanneer deze leeg zijn, moet u ze niet weggooien maar inleveren als KCA.

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6. Circuit Description and Overall Block Diagram

Appendix A Setting Check Sheet

Manual Structure

Purpose of this manual

This manual is the maintenance manual part1 of videocassette recorder BVW-55.

This manual is intended for use by trained system and service engineers, and provides the setting and maintenance information that is necessary at the time of primary service.

Contents

This manual is organized by following sections.

Section 1 Service Overview

Explains the fundamental information that is required to service, (removal of cabinet and cassette compartment, the functions of printed circuit board, the locations of main part, fixture and measuring equipment information, notes, etc.) and the measures against trouble.

Section 2 Error Message

Explains the error messages.

Section 3 Maintenance Mode

Explains each menu of the maintenance mode.

Section 4 Periodic Maintenance and Inspection

Explains the recommended periodic maintenance, and the cleaning procedure.

Section 5 Spare Parts

Describes the spare parts list and the exploded view for the service parts of this unit, and the supplied accessories list.

Section 6 Overall Block Diagram and Circuit Description

Describes the overall block diagram and the circuit description.

Appendix A Setting Check Sheet

The sheet is used for checking the setup conditions such as switch, setup menu under the application.

Related manuals

Besides this “maintenance manual part 1”, the following manuals are available for videocassette recorder BVW-55.

- **Operation Manual (Supplied with the BVW-55.)**

This manual is necessary for application and operation of the BVW-55.

- **Maintenance Manual Part 2 (available on request)**

This manual describes the information that premises the parts level service (adjustments, board layouts, schematic diagrams, detailed parts list, etc.) for this unit.

If this manual is required, please contact your local Sony Sales Office/Service Center.

- **Protocol Manual of Remote (9-pin) Connector (soon-to-be-available)**

This manual explains the protocol for controlling the VTR via the RS-422A (9-pin serial remote).

If this manual is required, please contact your local Sony Sales Office/Service Center.

- **BKNW-225 Maintenance Manual (Supplied with the BKNW-225)**

This manual describes the spare parts list and the exploded view for the service parts of the docking kit BKNW-225, that is used when the two BVWs are coupled.



Section 1

Service Overview

1-1. Power Supply

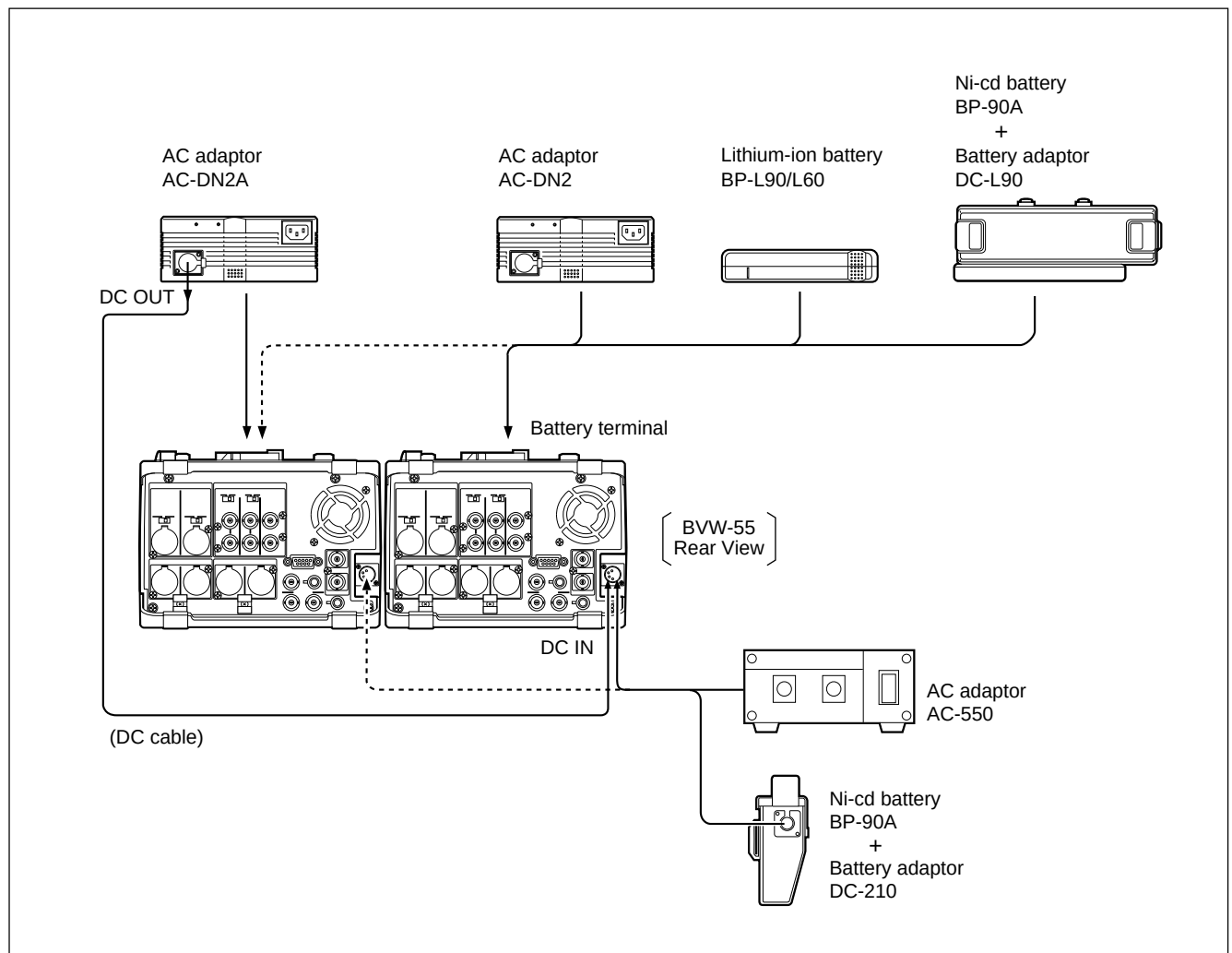
The unit works either on AC current (using the AC adaptor) or battery. When repairing or checking the unit, AC-operation is recommended.

Power Voltage: DC 11 to 17 V
Power Consumption : 65 W

Notes

- The AC adaptor AC-DN1 cannot be used to derive power.
- The AC adaptor AC-DN2A can supply power to two VTRs simultaneously. The AC-DN2 with serial No.11001 or higher can supply, too. If the above adaptor is used, power on the VTRs and load cassettes in turn allowing for an inrush current.
- While the unit is battery-operated, the remaining battery capacity is displayed on the sub LCD. When the battery is nearly dead, the WARNING indicator on the side of the LCD monitor will blink. For details, refer to the operation manual supplied with the unit.

Connection example (when operating two VTRs)

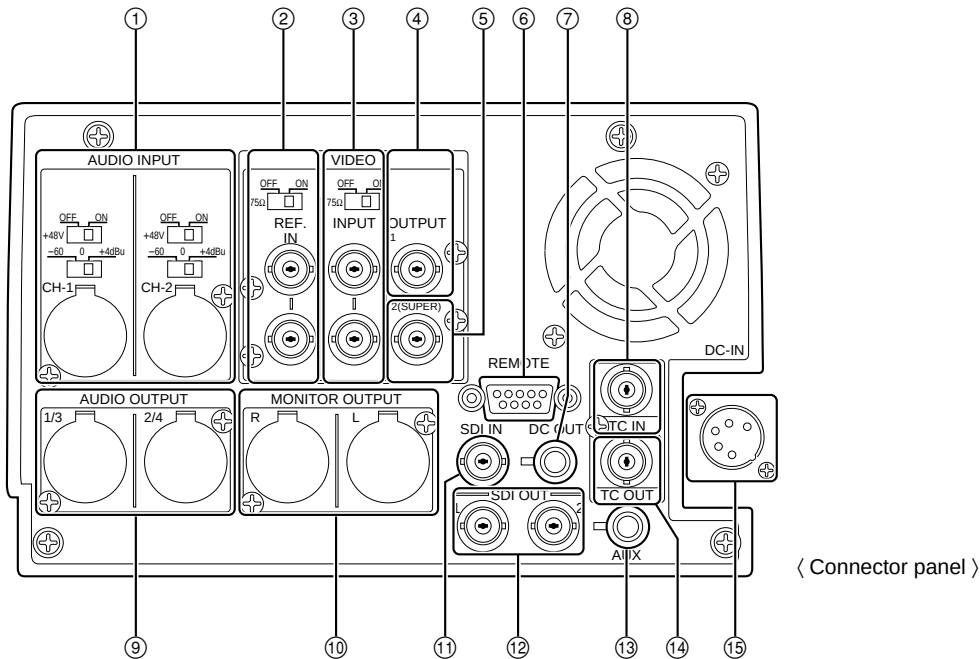


1-2. Matching Connectors/Cables

Connection made with the connector panels during installation or service, should be made with the connectors or complete cable assemblies specified in the following list, or equivalent parts.

Panel indication	Matching connector (Sony P/N)	Matching cable (Sony P/N)
VIDEO REF IN VIDEO INPUT VIDEO OUTPUT TC IN TC OUT	Plug, BNC 75 Ω (1-569-370-12)	RG-59B/U cable
SDI IN SDI OUT	Plug, BNC 75 Ω (1-569-370-12)	BNC coaxial cable (1-783-090-11:supplied with BKNW-225) or BELDEN 8281 cable (Maximum cable length: 200m)
AUDIO INPUT	XLR 3P, MALE (1-508-084-00)	—————
AUDIO OUTPUT MONITOR OUTPUT	XLR 3P, FEMALE (1-508-083-00)	—————
DC IN	XLR 4P, FEMALE (1-508-362-00)	DC power cord (1-551-577-00:supplied with AC-550/550CE)
DC OUT	Plug 4P MALE (1-566-425-11)	—————
REMOTE	Plug 9P MALE (1-560-651-00) Shell, Junction 9P (1-561-749-00)	9P remote control cable (1-783-089-11:supplied with BKNW-225) or RCC-5G(5 m)/10G(10 m)/30G(30 m)
AUX	Plug 6P MALE (1-560-078-00)	—————
HEADPHONES	JM-60 stereo phone plug (commercially available)	—————

1-3. Connector Input/Output signals



Communications connectors

⑥	REMOTE	D-SUB 9P connector × 1 (RS-422A interface) Remote control
⑬	AUX	6-pin connector × 1

Input connectors

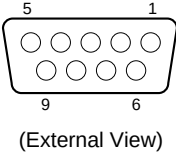
①	AUDIO INPUT CH-1/CH-2	XLR 3-pin × 2 Analog audio 2 channels −60 dBu, 0 dBu, +4 dBu selectable, high impedance, balanced
②	VIDEO REF. IN	BNC × 2 (In loop through connection, with 75 Ω termination switch) External reference video signal (Black burst or composite sync) 40 IRE/0.3 Vp-p, 75 Ω, negative sync
③	VIDEO INPUT	BNC × 2 (In loop through connection, with 75 Ω termination switch) Analog composite video 1.0 Vp-p, 75 Ω, negative sync
⑪	SDI IN	BNC × 1 Component digital (270 Mbit/s) SMPTE 259M/ITU-R BT.656
⑧	TC IN	BNC × 1 Time code 0.5 to 18.0 Vp-p, 10 kΩ, unbalanced
⑮	DC IN	XLR 4-pin × 1 DC +11 to 17 V
	BATTERY IN (on battery sub panel)	5-pin terminal × 1 Lithium-ion battery interface

Output connectors

④	VIDEO OUTPUT 1	BNC ×1 Analog composite video 1.0 Vp-p, 75 Ω, negative sync
⑤	VIDEO OUTPUT 2	BNC ×1 (Character superimpose enabled) Analog composite video 1.0 Vp-p, 75 Ω, negative sync
⑨	AUDIO OUTPUT 1/3, 2/4	XLR 3-pin ×2 Analog audio 2 channels (CH-1/CH-2 or CH-3/CH-4 selectable by sub LCD menu) +4 dBm (standard) (600 Ω load), low impedance, balanced
⑩	MONITOR OUTPUT R/L	XLR 3-pin ×2 Analog audio channel (AUDIO OUTPUT enabled by selecting sub LCD menu) +4 dBm (standard) (600 Ω load), low impedance, balanced
⑫	SDI OUT	BNC ×2 Component digital (270 Mbit/s) SMPTE 259M/ITU-R BT.656
⑭	TC OUT	BNC×1 Time code 1.0 Vp-p ±3 dB (75 Ω load), unbalanced
⑦	DC OUT	4-pin connector ×1 (for BVR-3) DC +12 V (+11 to 17 V), 0.5 A (max)
	HEADPHONES (at the front)	JM-60 stereo phone jack Analog audio up to −20 dBu adjustable (8 Ω load), unbalanced

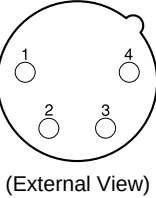
⑥ REMOTE (9P Female)

Pin No.	Signal
1	GND
2	RM TX (−)
3	RM RX (−)
4	GND
5	PRIORITY
6	GND
7	RM TX (+)
8	RM RX (+)
9	GND



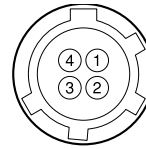
⑮ DC IN (4P Male)

Pin No.	Signal
1	GND
2	NC
3	NC
4	EXT DC



⑦ DC OUT (4P Female)

Pin No.	Signal
1	UNREG GND
2	NC
3	NC
4	UNREG +12 V

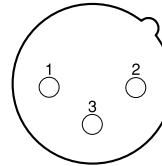


(External View)

① AUDIO INPUT (3P Female)**⑨ AUDIO OUTPUT (3P Male)****⑪ MONITOR OUTPUT (3P Male)**

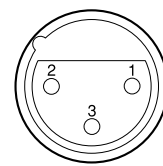
Pin No.	Signal
1	GND
2	X
3	Y

Male



(External View)

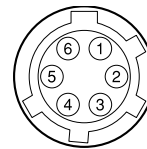
Female



(External View)

⑬ AUX (6P Female)

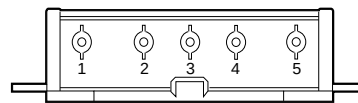
Pin No.	Signal
1	COM RX
2	COM TX
3	REG GND
4	CTS
5	RTS
6	NC



(External View)

BATTERY IN (5P)

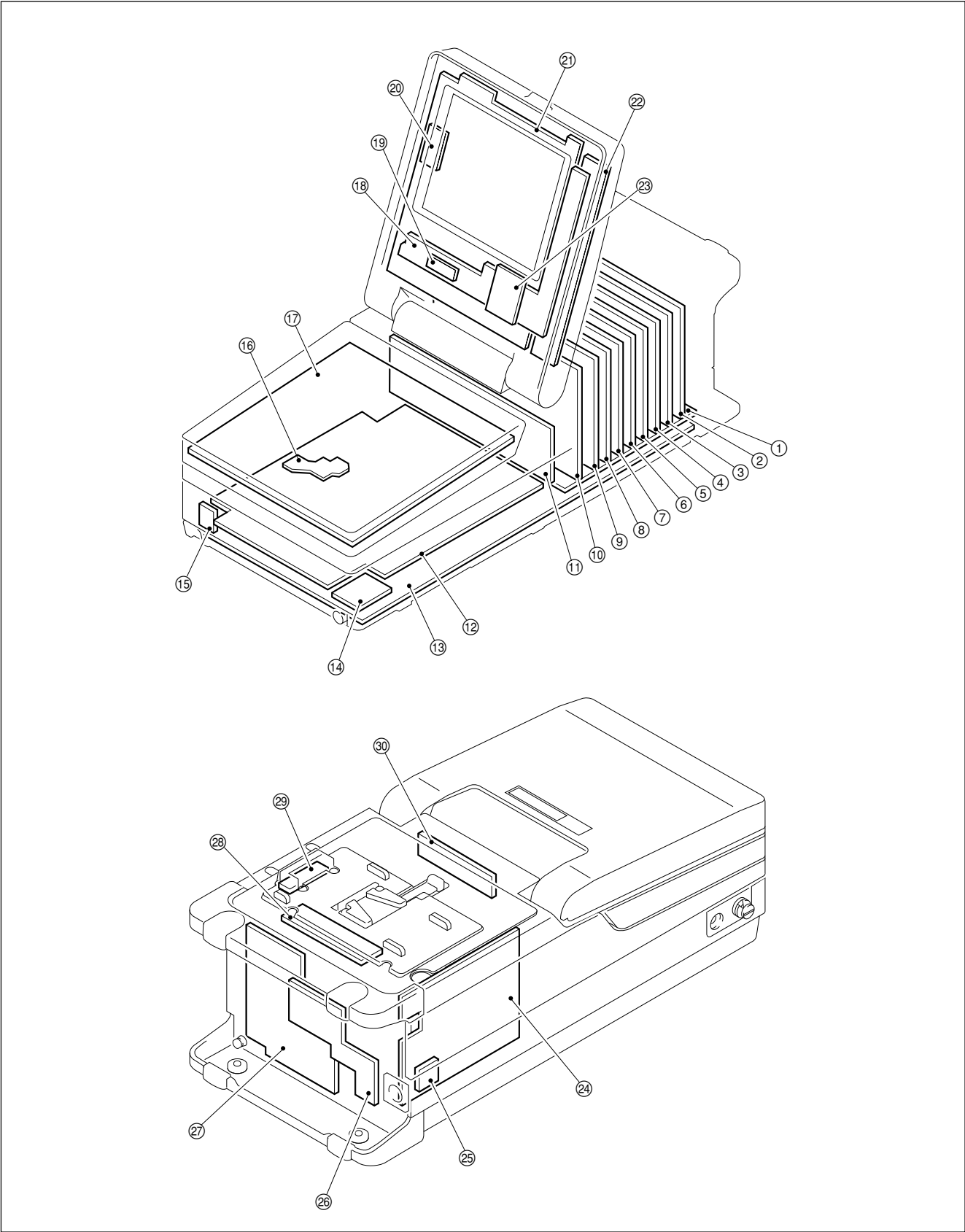
Pin No.	Signal
1	BATT (-)
2	BATT ID DET
3	BATT REM
4	LIGHT CONT
5	BATT (+)



(External View)

1-4. Location of Main Parts and Circuit Functions

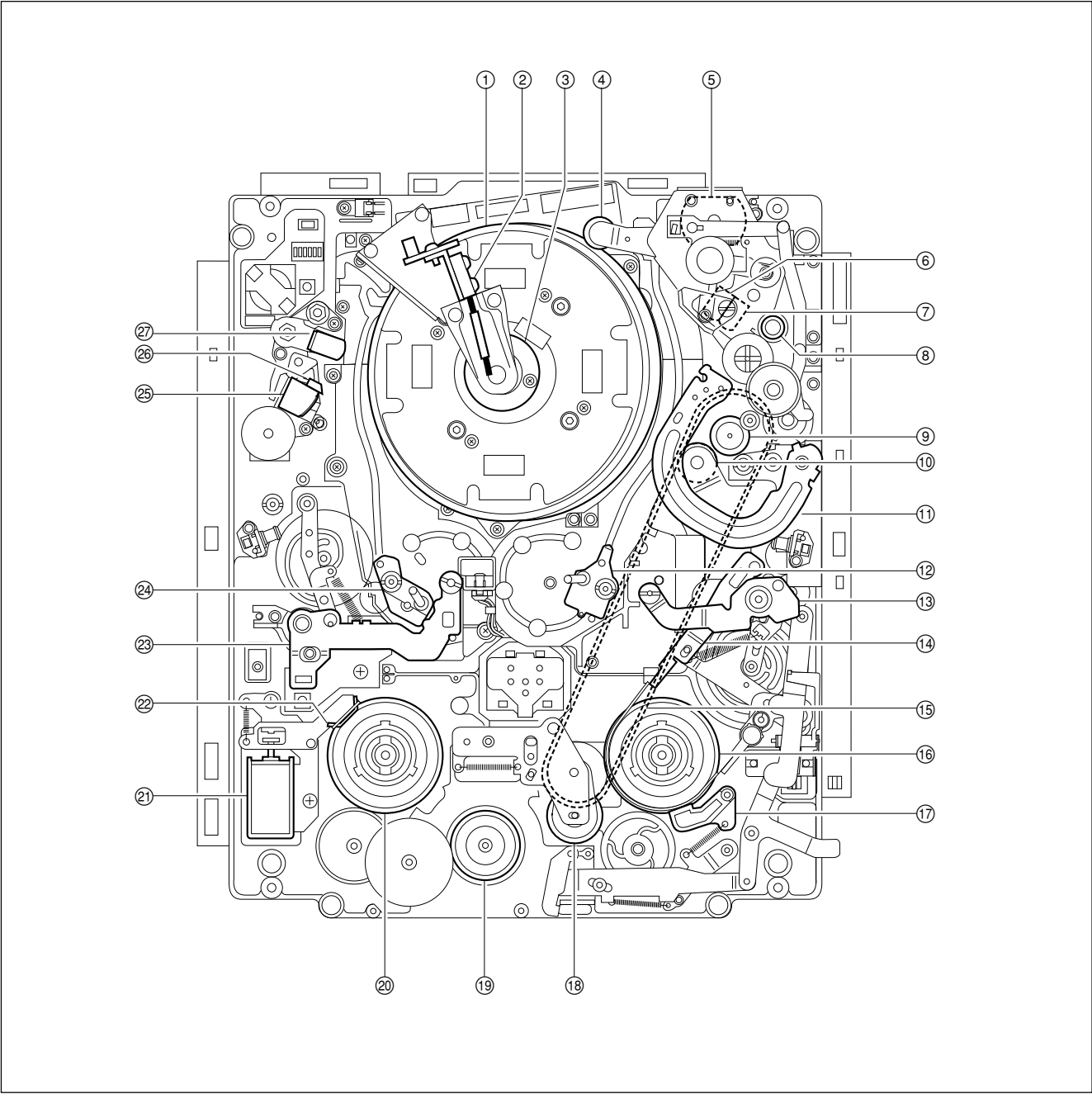
1-4-1. Function and Location of Printed Circuit Boards



System	Board	Circuit Function	Fig.
Digital processing	SDI-23	4:2:2 component serial digital interface	④
Video processing	DEC-97	Analog composite decoder	③
	VPR-59	Video signal processor Video process D-A, Composite encoder	②
Audio processing	AFM-16	AFM REC/PB, PB audio level control	⑧
	APR-42	Audio A-D and D-A, REC audio level control	⑨
	AU-262	Longitudinal audio REC/PB	⑩
RF processing	DM-121	RF demodulator, TBC*	⑬
	MD-122	RF modulator	⑥
	RP-107	RF REC/PB head amplifier	⑪
Timing generator	TG-191	Reference timing signal and clock generator	⑤
System control	SY-272	System control	⑦
Motor driver/sensor	SR-65	S tension sensor	⑯
	SV-206	Servo control, Motor driver, Sensors	⑫
Control panel	KY-406	Control panel function	⑰
display panel	CN-1541	Interconnection board (interconnecting between color LCD and DP-300 board)	⑳
	CN-1657	Interconnection board (interconnecting between sub LCD and DP-264 board)	⑲
	DP-264	display panel control for sub LCD	⑱
	DP-277	Audio meter LCD	㉓
	DP-300	display panel control for color LCD	㉑
	Inverter	Inverter for color LCD	㉒
Connector panel	CP-316	Connector board (AUDIO input/output, MONITOR output)	㉗
	CP-317	Connector board (VIDEO input/output, REF input, TC input/output, REMOTE)	㉖
	DC-97	DC IN connector board	㉕
Power	RE-174	Switching regulator	㉔
Others	CN-1662	Interconnection board (interconnecting between FL-251 and RE-174/CN-1779 boards)	㉘
	CN-1779	Interconnection board (mainly interconnecting between upper frame and MB-838 board)	㉙
	FL-251	Battery terminal board	㉚
	HP-88	Headphones jack	⑭
	MB-838	Mother board	①
	PSW-63	Power switch	⑮

*TBC: Time Base Corrector

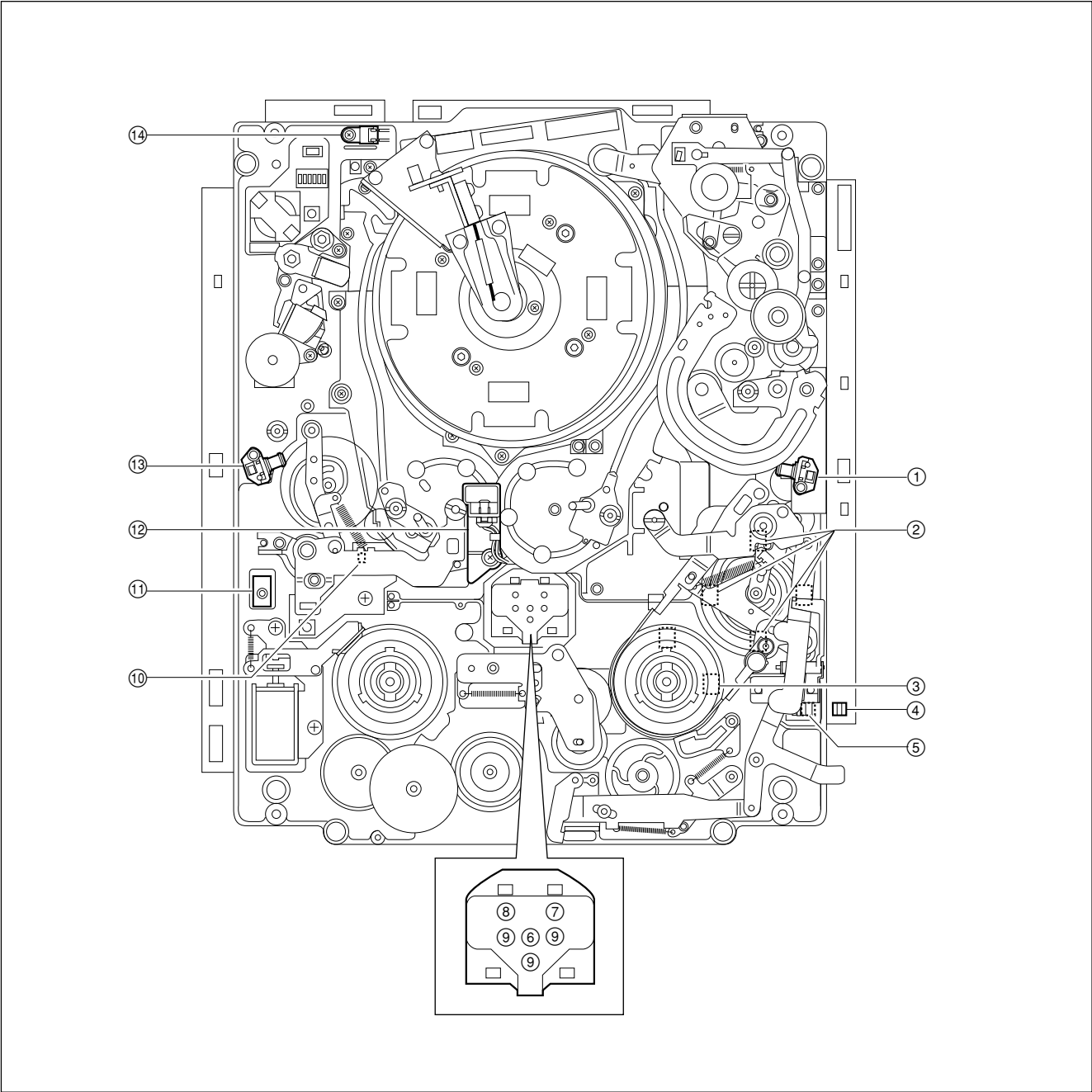
1-4-2. Main Mechanical Part Locations



Index

- ① Drum assembly
- ② Blush
- ③ Slip ring
- ④ Video head cleaner
- ⑤ Threading motor
- ⑥ TC erase head
- ⑦ AT head
- ⑧ Manual eject knob
- ⑨ Capstan motor
- ⑩ Pinch roller
- ⑪ T drawer arm
- ⑫ T slider
- ⑬ T tension regulator arm
- ⑭ Tension regulator band
- ⑮ Timing belt (reel)
- ⑯ T reel table
- ⑰ T soft brake
- ⑱ Gear
- ⑲ S reel motor
- ⑳ S reel table
- ㉑ Brake solenoid
- ㉒ S main brake
- ㉓ S tension regulator arm
- ㉔ S slider
- ㉕ Full erase head
- ㉖ Tape cleaner
- ㉗ CTL head

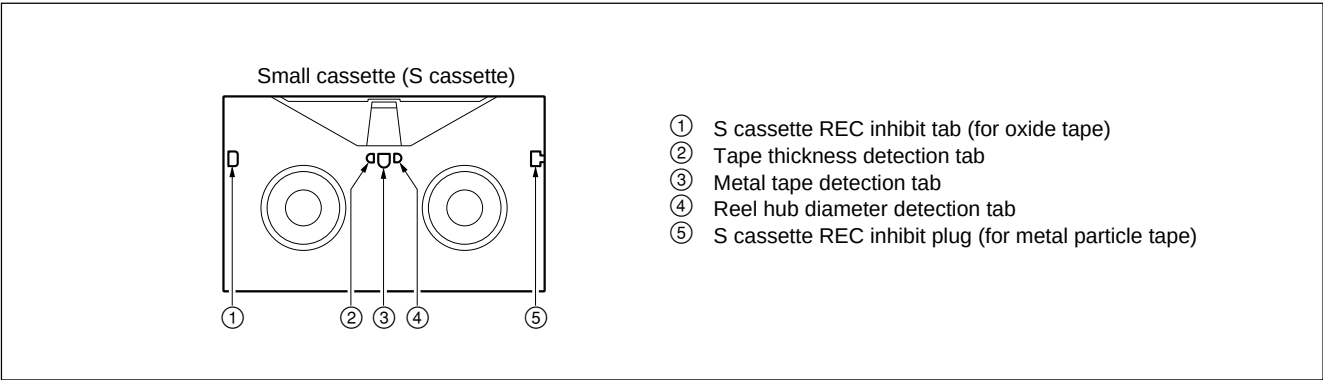
1-4-3. Function and Location of Sensors



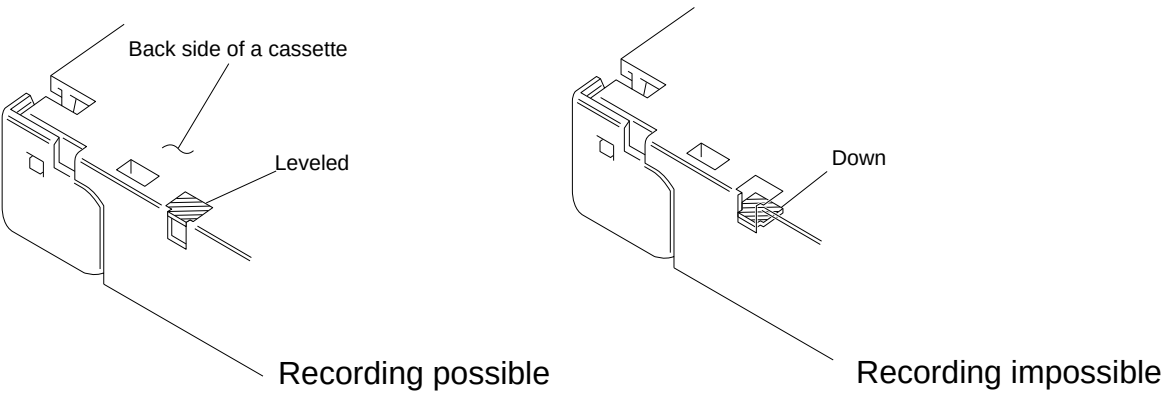
- ① Tape top sensor
Detects the end of the tape running in the reverse direction.
- ② Function cam sensor
Detects the rotation position of the cam.
- ③ T reel table FG sensor
Detects the rotation speed of the T reel table. In addition, the sensor output FG is sent to the servo circuit to calculate the diameter of wound tape and to discriminate the abnormality of the T reel table rotation.
- ④ Cassette compartment lock sensor
Detects whether the cassette compartment is locked or not.
- ⑤ Full top (end) sensor
Detects whether the full-end of tape in the reverse/forward direction when inserting the cassette tape.
- ⑥ Oxide/Metal sensor
Detects the metal tape detection tab of a cassette to discriminate whether the tape stored in a Betacam/Betacam SP cassette is an oxide or metal particle tape.
- ⑦ Tape thickness sensor
Detects the tape thickness detection tab of a cassette to discriminate the thickness of the tape stored in a cassette.
- ⑧ Reel hub diameter sensor
There are two kinds of hubs (thin or thick in diameter) according to the length of a tape stored in a cassette. This sensor detects the reel hub diameter detection tab of a cassette to discriminate which hub is used in a cassette. The output of the sensor is sent to the servo circuit of the S reel motor to control the reel rotation speed and torque during tape running.
- ⑨ Cassette classification sensors
Detect the three cassette classification detection tabs of a cassette to discriminate whether an inserted cassette can be used for the unit.
- ⑩ S tension regulator arm sensor
Detects the position of the S tension regulator arm. The output of the sensor is sent to the S reel motor servo circuit to control the reel torque to keep a constant S tape tension during recording and playback.
- ⑪ Metal tape REC inhibit sensor
Detects the state of the REC inhibit plug of an S cassette for metal-particle tape.
- ⑫ Oxide tape REC inhibit sensor
Detects the state of the REC inhibit plug of an S cassette for oxide tape.
- ⑬ Tape end sensor
Detects the end of the tape running in the forward direction.
- ⑭ Condensation sensor
Detects whether the dew condensation occurs in the unit or not.

1-5. System of Cassette

Use the small cassette for Betacam or Betacam SP.
As shown in the figure below, plugs and tabs are provided at the back side of the cassette tape.



REC Inhibit Plugs



Detection Tabs

No.	Use	With tab (closed)	Without tab (opened)
②	Tape thickness detection	Thickness: 20 μm	Thickness: 15 μm
③	Metal tape detection	Oxide tape	Metal particle tape
④	Reel hub diameter detection	Small hub	Large hub

1-6. Removing/Reinstalling the Cabinet

This section explains the removal and installation procedures for main parts.
For other mechanical parts, refer to the maintenance manual Part 2 Volume 1.

Note

If two VTRs are coupled, remove the handle, joint plates and cables that are docking the VTRs in advance.
As for how to separate, refer to the operation manual supplied with the BVW-55.

1-6-1. Battery Sub Panel

CAUTION

The unit is equipped with shielding springs which have sharp edges.
Do not contact them with bare hands. Pay careful attention when servicing.

1. Loosen the four screws fully.

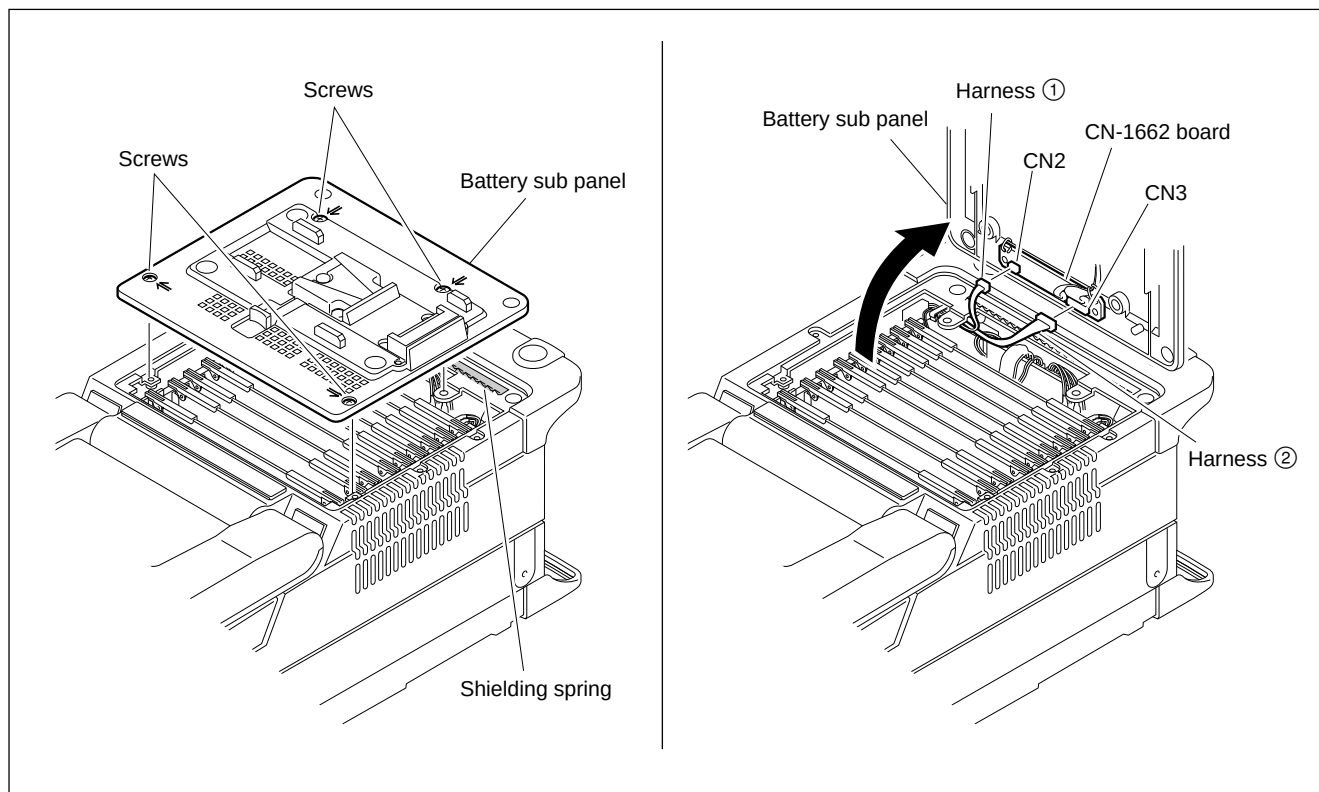
Note

Each screw is held by a stop washer. Do not separate the washer from the screw when loosening.

2. Disconnect the two harnesses ① and ② from the connectors (CN2, CN3) on the CN-1662 board.
3. Reinstall the battery sub panel in the reverse order of removal.

Note

When reinstalling, take care that the harnesses are not caught between the upper frame and battery sub panel.



1-6-2. Upper Frame

CAUTION

The unit is equipped with shielding springs which have sharp edges.
Do not contact them with bare hands. Pay careful attention when servicing.

1. Remove the battery sub panel. (Refer to Section 1-6-1.)
2. Open the display panel.
3. Insert a flatblade screwdriver or similar item into the rectangular hole and unhook as shown in the figure. And then, open the control panel.
4. Fully loosen the four screws securing the upper frame.
Remove the upper frame by lifting up and put it on the right as shown in the figure.

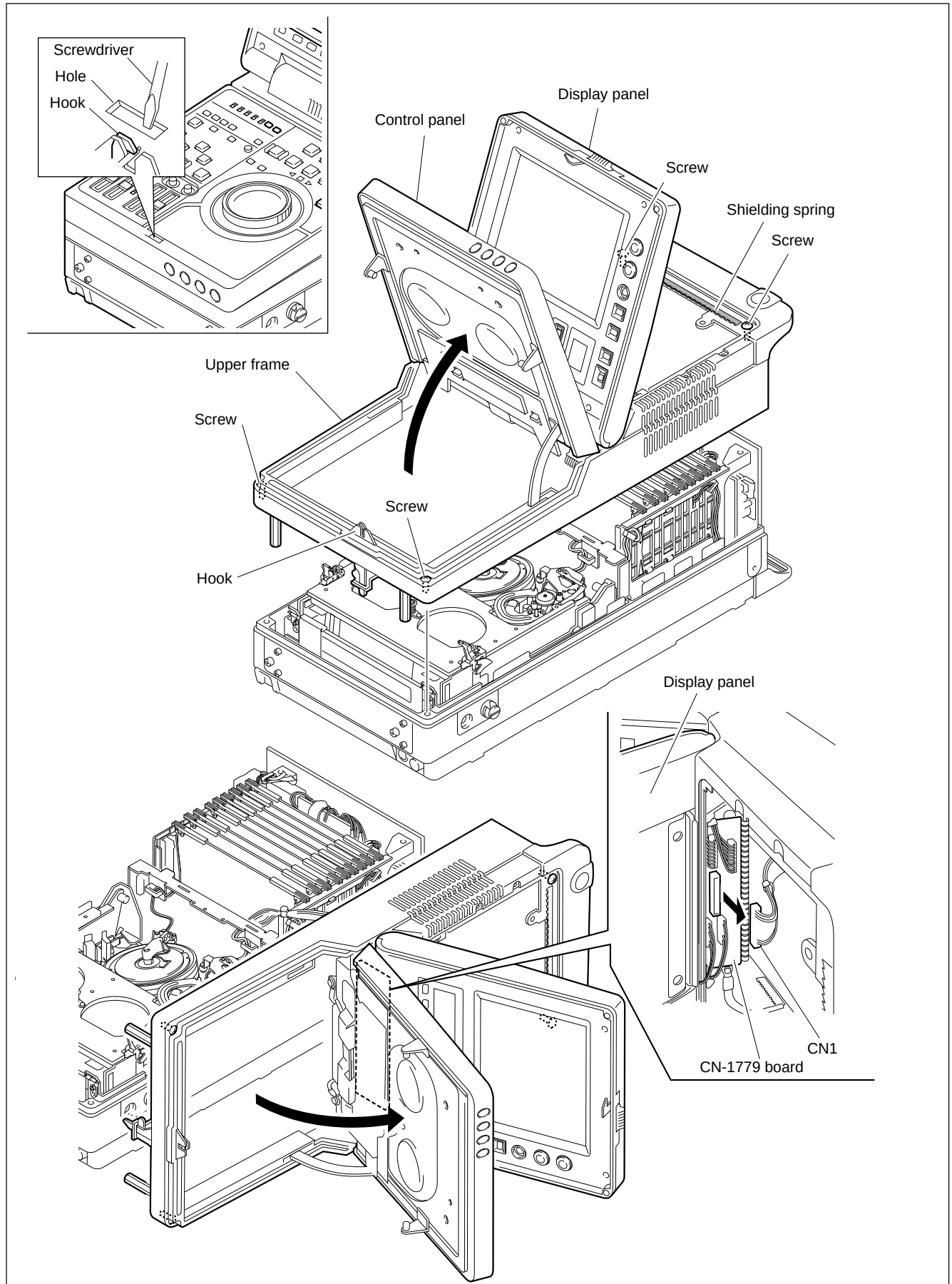
Note

Each screw is held by a stop washer. Do not separate the washer from the screw when loosening.

5. Disconnect the harness from the connector (CN1) on the CN-1779 board.
6. Reattach the upper frame in the reverse order of removal.

Notes

- Take care that the harnesses are not caught between the upper and lower frames.
 - Before tightening the screws of the upper frame, slide the hook to the left and release it to check that it returns to the original position.
7. Also secure the four screws of the connector panel. (Refer to Section 1-6-3.)



1-6-3. Connector Panel

CAUTION

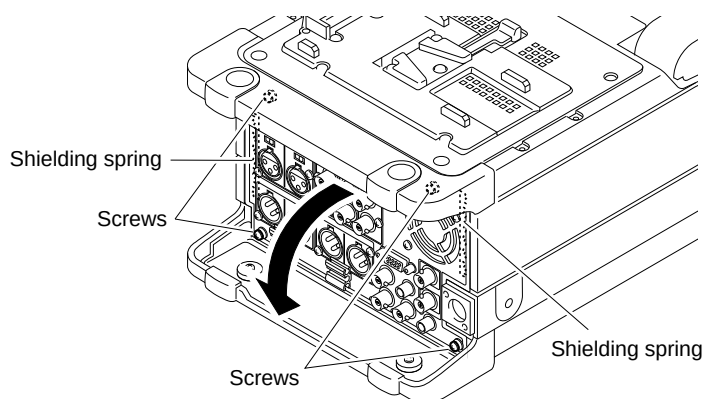
The unit is equipped with shielding springs which have sharp edges.
Do not touch them with bare hands. Pay careful attention when servicing.

1. Fully loosen the four screws of the connector panel.

Note

Each screw is held by a stop washer. Do not separate the washer from the screw when loosening.

2. Open the connector panel in the direction of the arrow.
3. Reinstall the connector panel in the reverse order of removal.



1-6-4. Bottom Plate

1. Lay the unit as shown in the figure. Open the display panel for stability.
2. Loosen the four screws securing the bottom plate fully.

Note

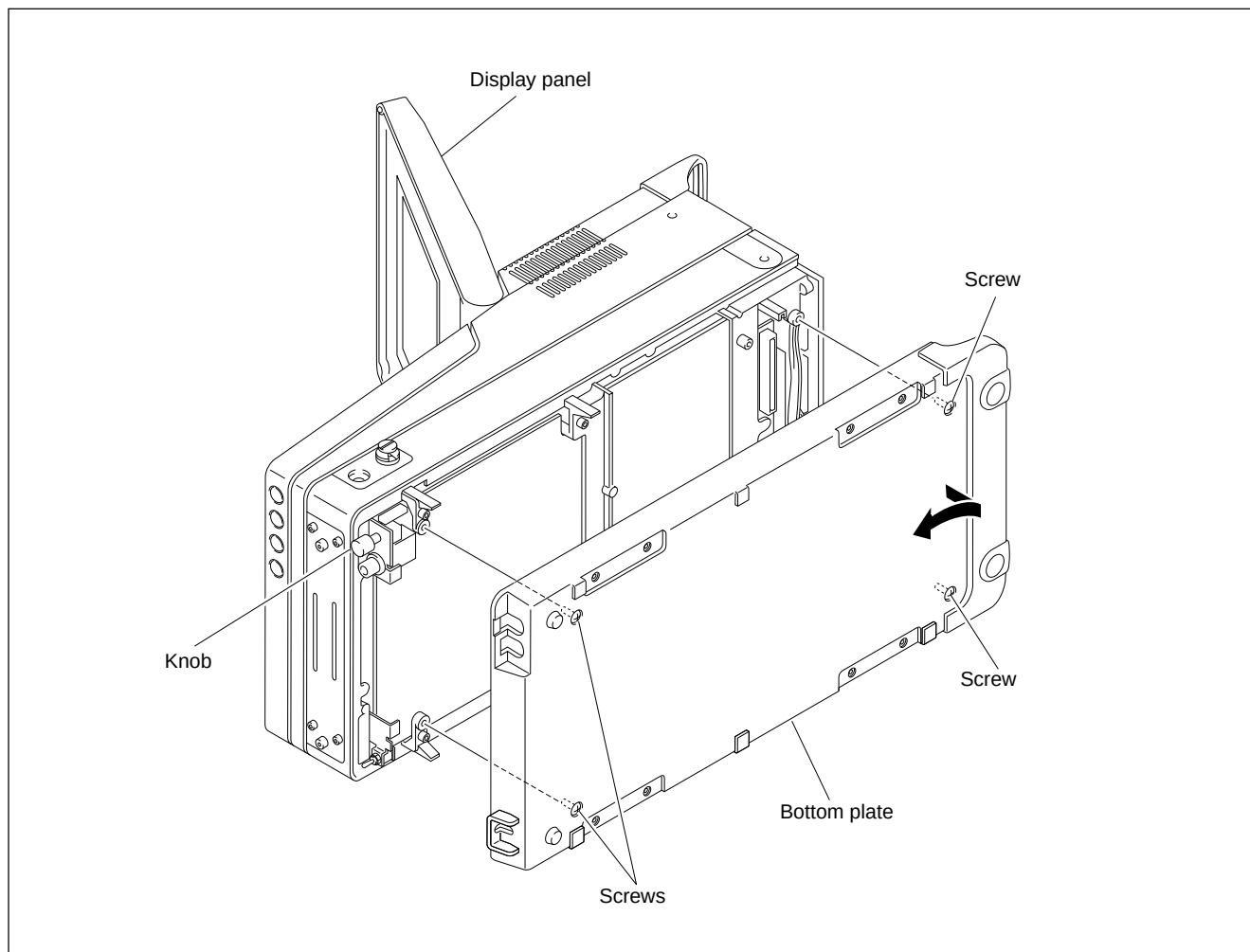
Each screw is held by a stop washer. Do not separate the washer from the screw when loosening.

3. Remove the bottom plate while drawing the rear of the plate in the direction of the arrow.

Note

Be careful not to get snagged on the knob when removing the bottom plate.

4. Reinstall the bottom plate in the reverse order of removal.



1-7. Removing/Reinstalling the Cassette Compartment

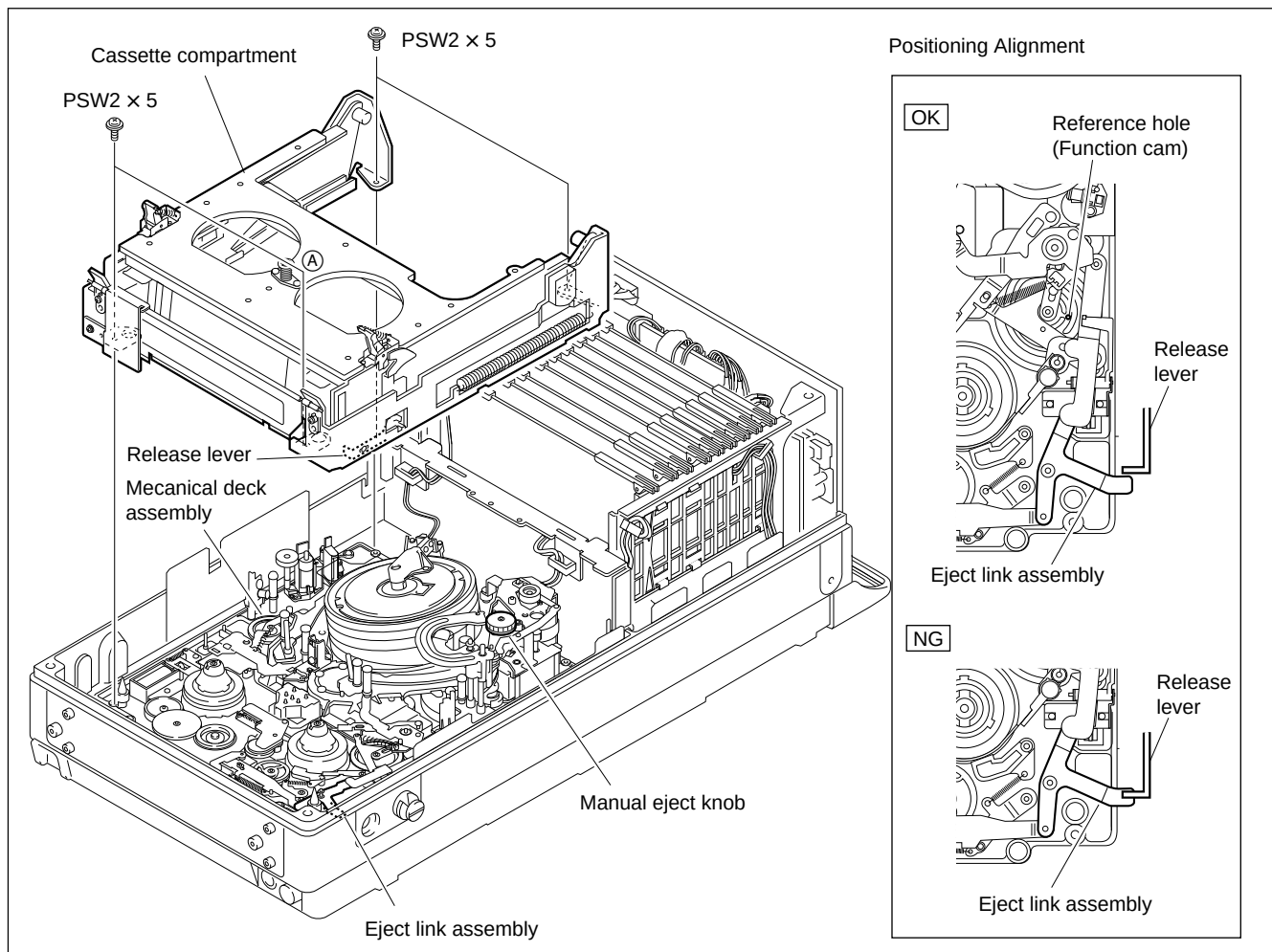
Note

When removing or installing the cassette compartment, it is possible for screws to fall into the mechanical deck assembly. To prevent this, it is recommended to magnetize the screwdriver bit moderately.

1. Make sure the unit is in the unthreading end state. (Refer to Section 1-18.)
2. Remove the upper frame. (Refer to Section 1-6-2.)
3. Remove the four screws of the cassette compartment.
Grasp the cassette compartment by the portion (A) and lift it out from the mechanical deck assembly.
4. Reinstall the cassette compartment in the reverse order of removal.

Notes

- At installation, make sure that the release lever of the cassette compartment is in proper alignment with the eject link assembly as shown in the figure. If the release lever is positioned over the eject link assembly (for example when the unit is put in the manual eject mode), the eject link assembly must be aligned. The alignment can be performed in two possible methods:
 - (1) Turn on the power once and the eject link assembly will return to the proper position automatically.
 - (2) Turn the manual eject knob (red) clockwise two or three turns while pushing down until the reference hole of the function cam comes into sight.
- The screws securing the cassette compartment should be torqued as specified.
Tightening torque: $20 \times 10^{-2} \text{ N}\cdot\text{m}$ {2.0 kgf·cm}



1-8. Disconnecting/Reconnecting the Printed Circuit Boards

This section explains the disconnecting and connecting procedures for plug-in boards which have switches or slit lands that need to be set.

For other circuit boards, refer to the maintenance manual Part 2 Volume 1.

Note

Before disconnecting or connecting the plug-in board, be sure to turn off the power. To turn off the power, be sure to disconnect the battery or the cable connected at the DC IN connector, in addition to turning off the power switch.

1-8-1. Plug-in Board

CAUTION

The unit is equipped with shielding springs which have sharp edges. Do not touch them with bare hands. Pay careful attention when servicing.

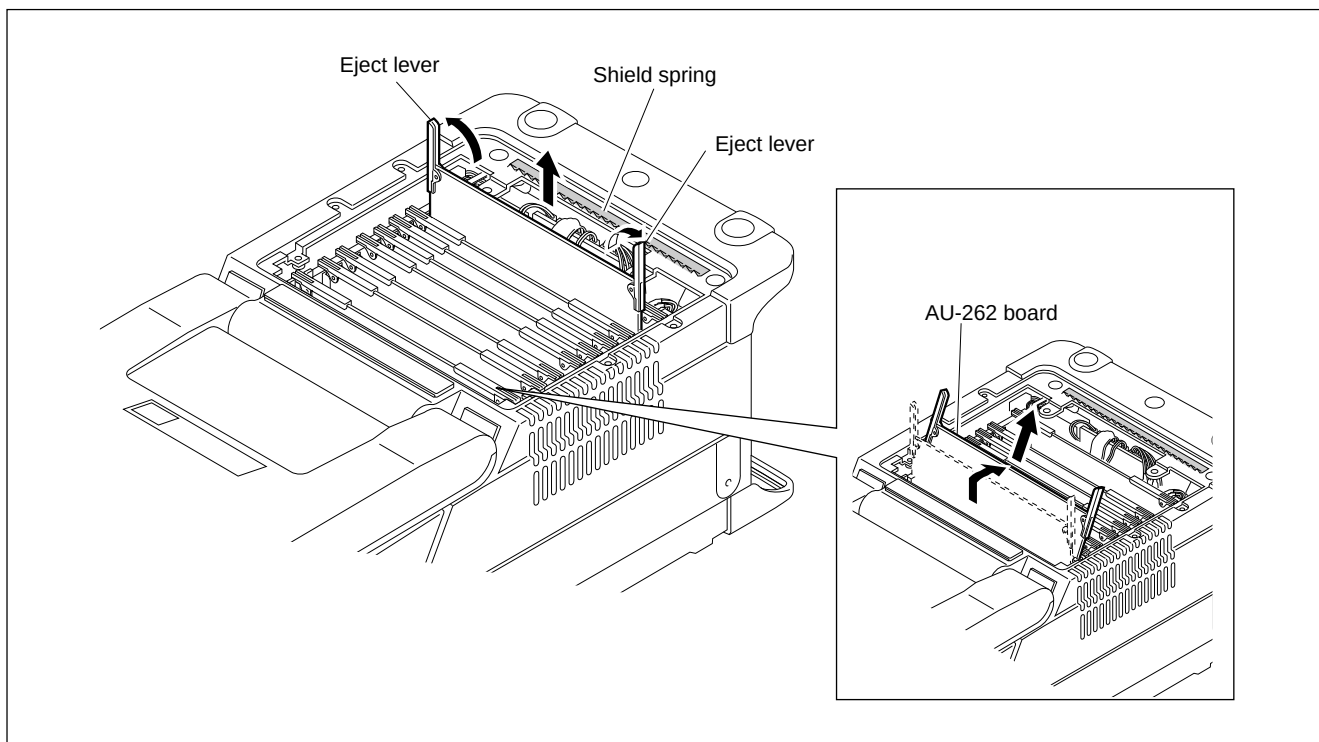
Disconnecting

1. Remove the battery sub panel. (Refer to Section 1-6-1.)
2. Open the eject levers, and then pull the board out as shown in the figure.

Note

When removing the AU-262 board, follow the steps below:

Slightly pull the board out and tilt it toward the connector panel. And then, lift the board out.



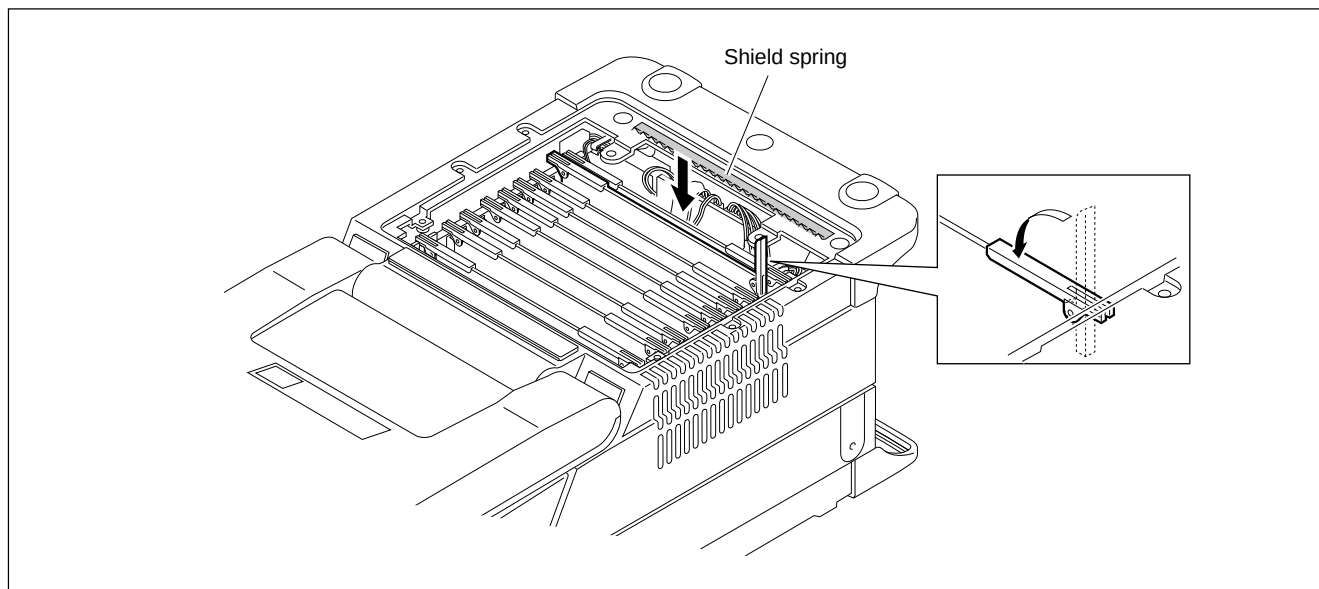
Reconnecting

1. Insert the plug-in board into the unit with the right eject-lever opened. (The left lever can be closed.)

Note

If the right lever is closed while inserting the board, it will get in the way of installing the board.

2. Close the right lever to reconnect the board to the connector of the motherboard.
3. Reinstall the battery sub panel. (Refer to Section 1-6-1.)

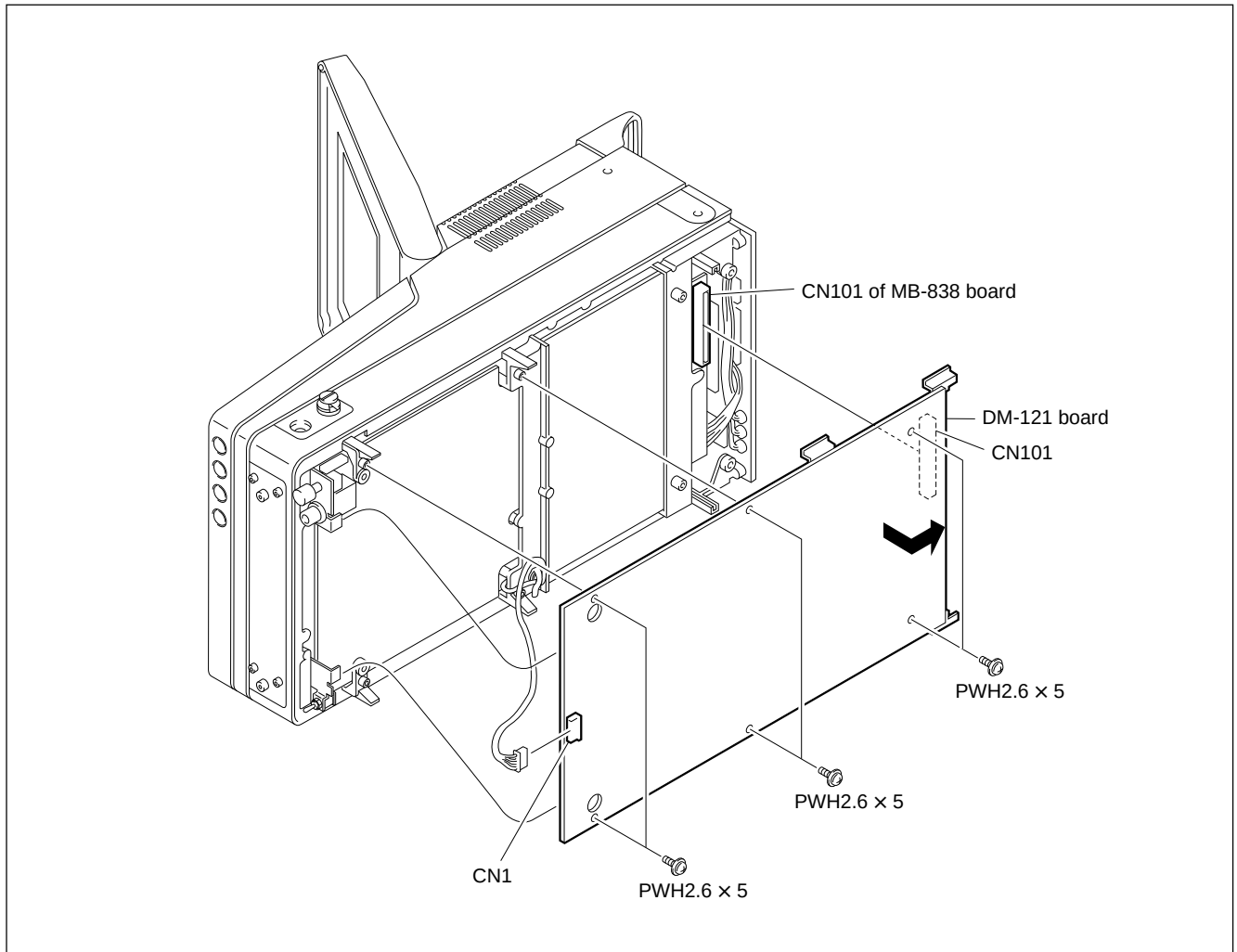


1-8-2. DM-121 Board

1. Remove the bottom plate. (Refer to Section 1-6-4.)
2. Remove the six screws of the DM-121 board.
3. Disconnect the harness from the connector CN1.
4. Grasp the board by the edge toward the connector panel, and then remove it in the direction of the arrow.
5. Reinstall the DM-121 board in the order of steps 3, 4, 2 and 1.

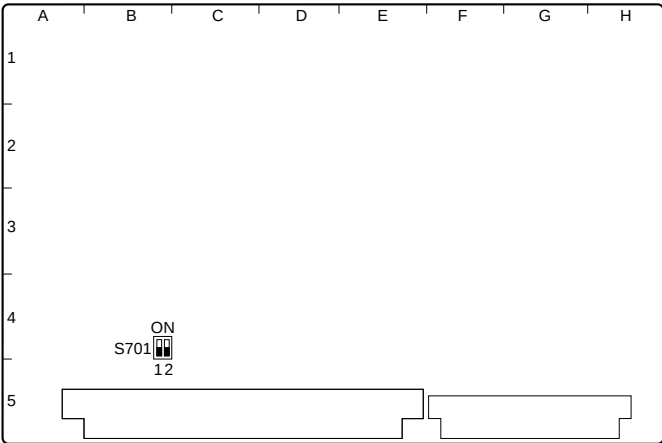
Note

Ensure that the CN101 of the DM-121 board firmly connects to the CN101 of the MB-838 board before securing the DM-121 board using the screws.



1-9. Settings for Internal Switches/Slit Lands

AFM-16 Board



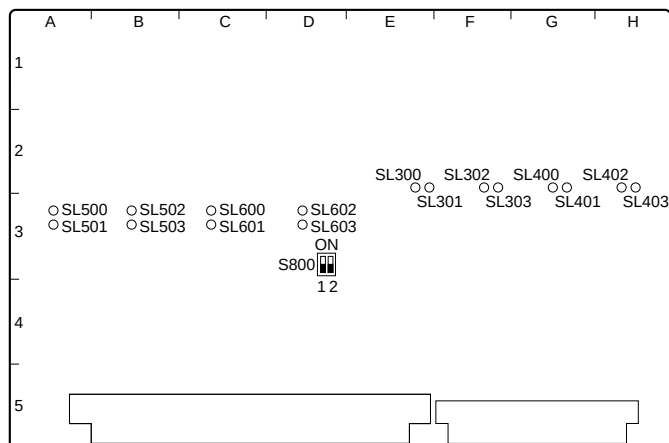
AFM-16 Board (Side A)

Switches

Note

Do not change setting of the factory-use switch.

Ref.No.	Switch name	Description	Factory setting
S701-1	AFM CARRIER MUTE	ON: AFM not recorded OFF: AFM recorded	OFF
S701-2		Factory use	OFF

APR-42 Board

APR-42 Board (Side A)

Settings for SDI Audio Input Headroom CH1 to CH4 (for slit lands)

Channel	Ref.No. (Indication)	Input headroom (20 dB)	() : Factory setting	
			18 dB	16 dB
CH1	SL300 (18 dB)	Open	Short	Open
	SL301 (16 dB)	Open	Open	Short
CH2	SL302 (18 dB)	Open	Short	Open
	SL303 (16 dB)	Open	Open	Short
CH3	SL400 (18 dB)	Open	Short	Open
	SL401 (16 dB)	Open	Open	Short
CH4	SL402 (18 dB)	Open	Short	Open
	SL403 (16 dB)	Open	Open	Short

Settings for SDI Audio Output Headroom CH1 to CH4 (for slit lands)

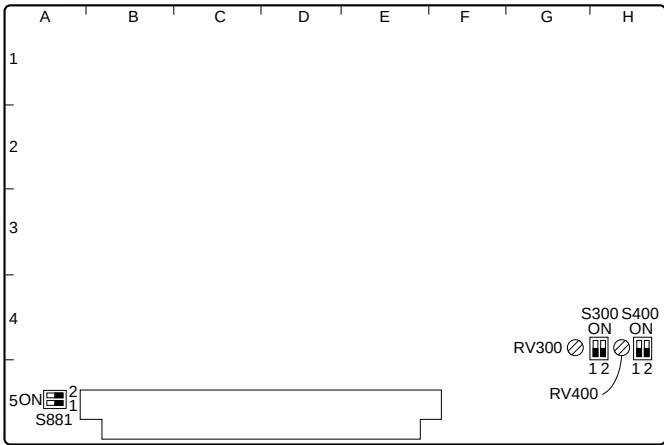
Channel	Ref.No. (Indication)	Output headroom (20 dB)	() : Factory setting	
			18 dB	16 dB
CH1	SL500 (18 dB)	Open	Short	Open
	SL501 (16 dB)	Open	Open	Short
CH2	SL502 (18 dB)	Open	Short	Open
	SL503 (16 dB)	Open	Open	Short
CH3	SL600 (18 dB)	Open	Short	Open
	SL601 (16 dB)	Open	Open	Short
CH4	SL602 (18 dB)	Open	Short	Open
	SL603 (16 dB)	Open	Open	Short

Switches**Note**

Do not change settings of the factory-use switches.

Ref.No.	Description	Factory setting
S800-1	Factory use	OFF
S800-2	Factory use	OFF

AU-262 Board



AU-262 Board (Side A)

HEAD TUNE switches (for longitudinal audio playback)

At installation, it is unnecessary to change setting of the switches.

Channel	Ref.No	Description
CH1	S300	Adjusts the CH1 head amp high frequency response together with RV300 This switch adjusts the resonance frequency and RV300 adjusts the audio head dumping Switch position differs depending on the adjustment condition at the factory
CH2	S400	Adjusts the CH2 head amp high frequency response together with RV400 This switch adjusts the resonance frequency and RV400 adjusts the audio head dumping Switch position differs depending on the adjustment condition at the factory

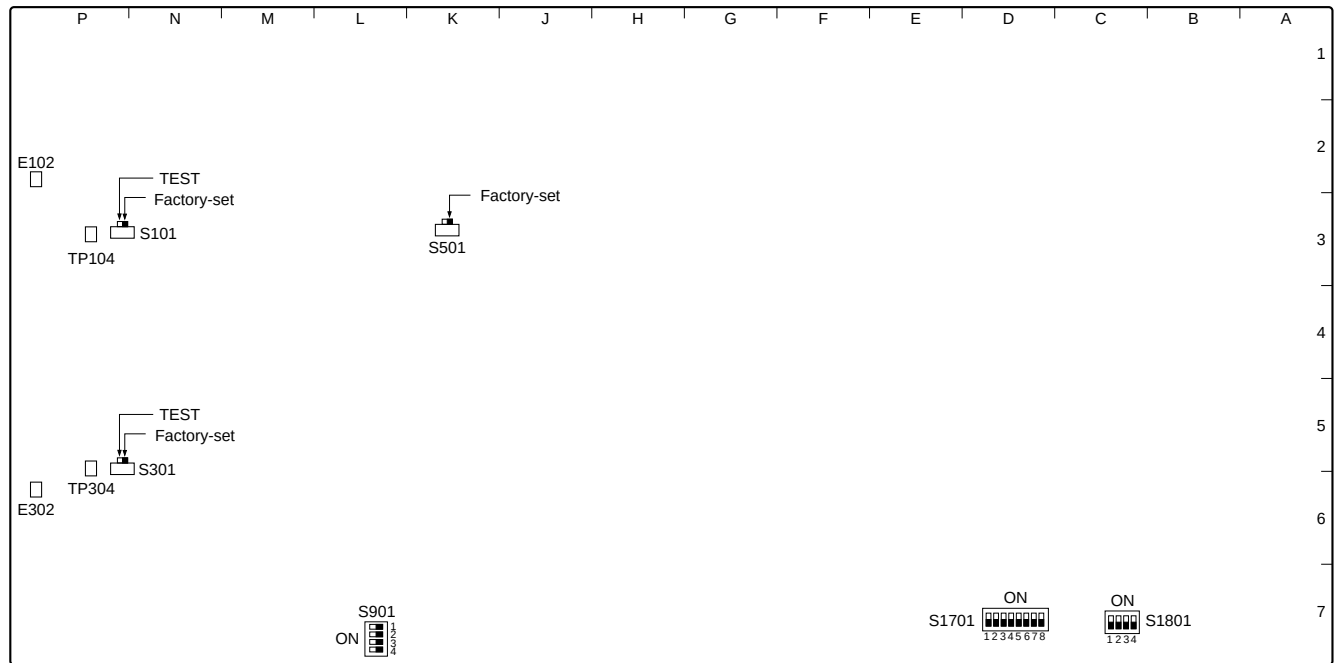
Switches

Note

Do not change settings of the factory-use switches.

Ref.No.	Description	Factory setting
S881-1	Factory use	OFF
S881-2	Factory use	OFF

DM-121 Board



DM-121 Board (Side B)

Switches

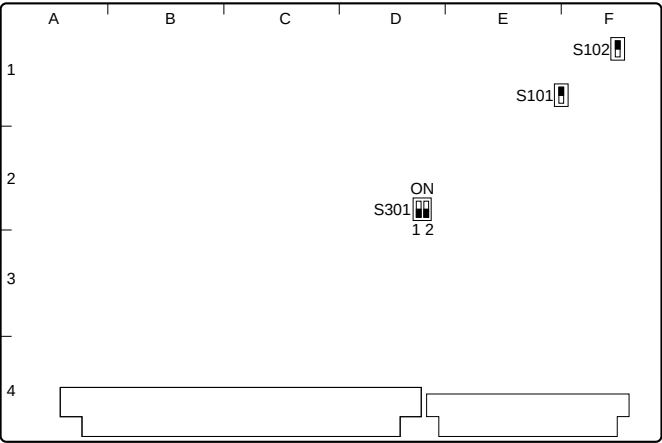
Note

Do not change settings of the factory-use switches.

Ref.No.	Switch name	Description	Factory setting
S101	Y EQ TEST	Test signal connection switch for Y RF LPF&EQ adjustment In adjusting, input the test signal to TP104 (GND to E102) with S101 set to TEST (see illustration) position	See illustration
S301	C EQ TEST	Test signal connection switch for C RF LPF&EQ adjustment In adjusting, input the test signal to TP304 (GND to E302) with S301 set to TEST (see illustration) position	See illustration
S501		Factory use	OFF
S901-1	ADJ	Use for RF EQ adjustment. OFF: Normal mode ON: Adjustment/Test mode	OFF
S901-2		Factory use	OFF
S901-3	AGC OFF	Turns on and off the AGC function during RF EQ adjustment OFF: Normal mode (AGC is turned on) ON: AGC is turned off	OFF
S901-4		Factory use	OFF

Ref.No.	Switch name	Description	Factory setting
S1701-1	Y MUTE	OFF: Normal mode ON: Luminance signal is muted	OFF
S1701-2		Factory use	OFF
S1701-3		Factory use	OFF
S1701-4	C MUTE	OFF: Normal mode ON: Color difference signal is muted	OFF
S1701-5	COMB	Selects whether a comb filter is turned on or off when the color difference signal has the significant line crawl which the LCC cannot correct OFF: Normal mode (Comb filter is turned off) ON: Comb filter is turned on	OFF
S1701-6		Factory use	OFF
S1701-7		Factory use	OFF
S1701-8		Factory use	OFF
S1801-1	D CLP OFF	Turns on and off the digital clamp function Usually turn off this switch, and a DC difference between B-Y and R-Y signals (if present) is corrected by the digital clamp function Turn on only to turn off the digital clamp for test OFF: Normal mode (Digital clamp is turned on) ON: Digital clamp is turned off	OFF (Digital clamp ON)
S1801-2		Factory use	OFF
S1803-3		Factory use	OFF
S1803-4		Factory use	OFF

MD-122 Board



MD-122 Board (Side A)

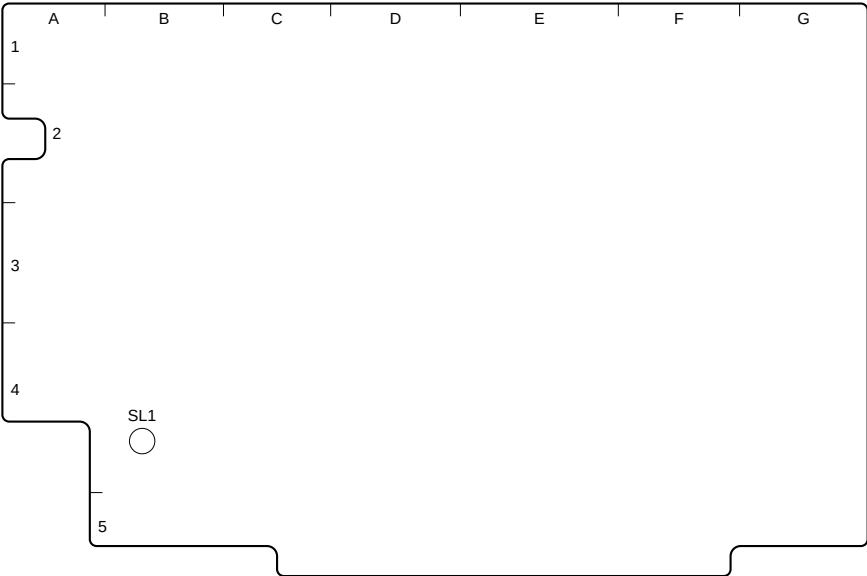
Switches

Note

Do not change settings of the factory-use switches.

Ref.No.	Switch name	Description	Factory setting
S101		Factory use	ON
S102		Factory use	ON
S301-1	NON LINEAR EMPHASIS	Turn on to enable the function of non-liner emphasis circuit	OFF
S301-2	TEST	Turn on when adjusting the Y/C clip	OFF

RE-174 Board

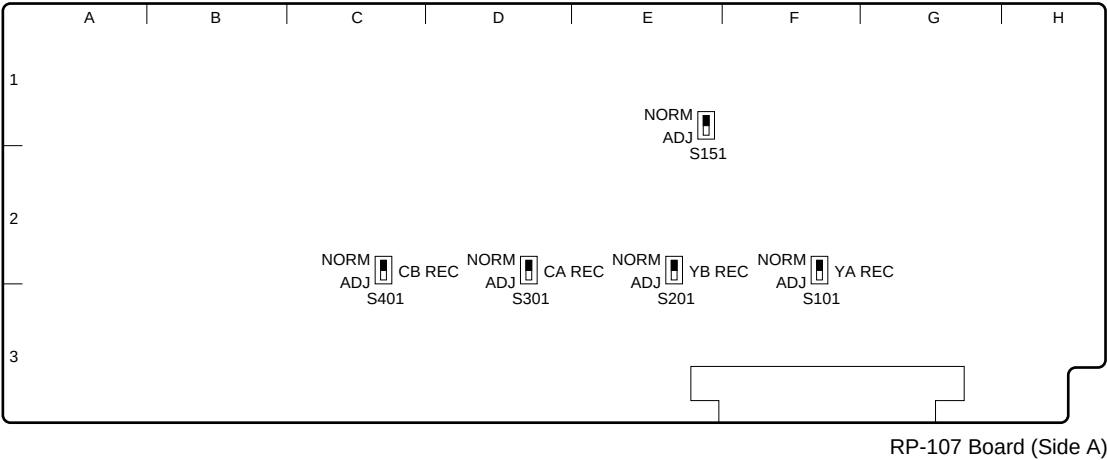


RE-174 Board (Side A)

Slit Land

Ref.No.	Description	Factory setting
SL1	Selects how the power is derived when the battery and external power supply are used simultaneously Open: Always derived from the external power supply Short: Normally derived from the external power supply When an input voltage is 10.5 V or below, automatically selects the battery	Open

RP-107 Board



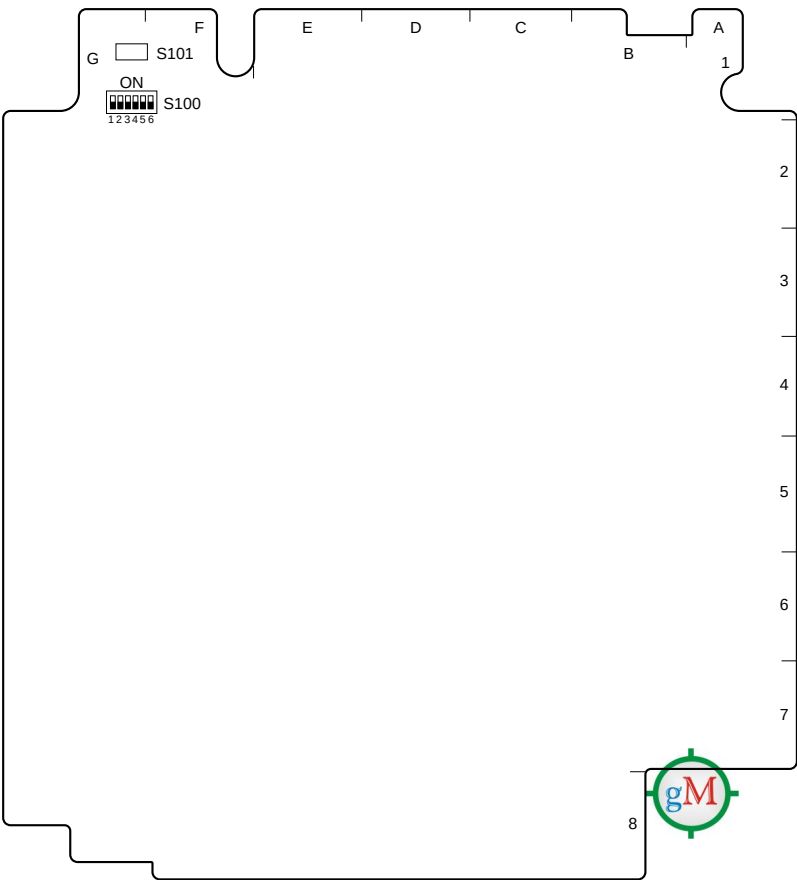
Switches

Note

Do not change setting of the factory-use switch.

Ref.No.	Switch name	Description	Factory setting
S101	YA REC	When adjusting YA REC current, set this switch to "ADJ" (lower position) and connect the current probe to TP101 and TP102.	NORM (Upper position)
S151		Factory use	NORM (Upper position)
S201	YB REC	When adjusting YB REC current, set this switch to "ADJ" (lower position) and connect the current probe to TP201 and TP202.	NORM (Upper position)
S301	CA REC	When adjusting CA REC current, set this switch to "ADJ" (lower position) and connect the current probe to TP301 and TP302.	NORM (Upper position)
S401	CB REC	When adjusting CB REC current, set this switch to "ADJ" (lower position) and connect the current probe to TP401 and TP402.	NORM (Upper position)

SV-206 Board



SV-206 Board (Side B)

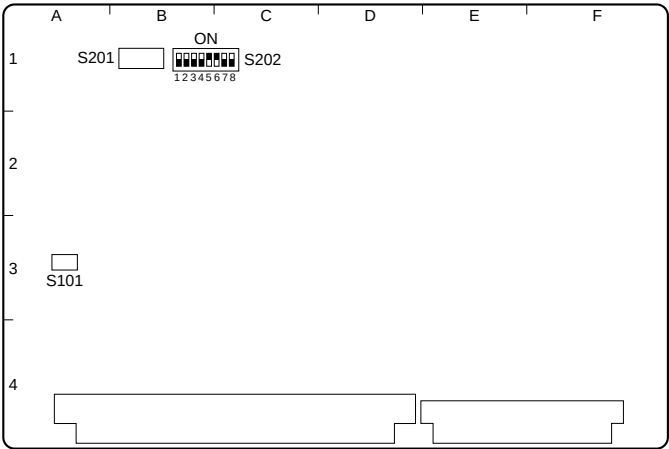
Switches

Note

Do not change settings of the factory-use switches.

Ref.No.	Switch name	Description	Factory setting
S100-1	CASSETTE COMPARTMENT LOCK	Turns on and off the function to assume that the cassette compartment is locked without the cassette compartment installed ON: Assumes the cassette compartment is locked OFF: Normal mode	OFF
S100-2	SERVO ERR NOT DET	Turns on and off the function to detect the servo error ON: Servo error is not detected OFF: Normal mode	OFF
S100-3		Factory use	OFF
S100-4		Factory use	OFF
S100-5		Factory use	OFF
S100-6		Factory use	OFF
S101	INITIAL	When powered on while pressing this switch, the servo adjustment data is returned to its default value	—

SY-272 Board



SY-272 Board (Side A)

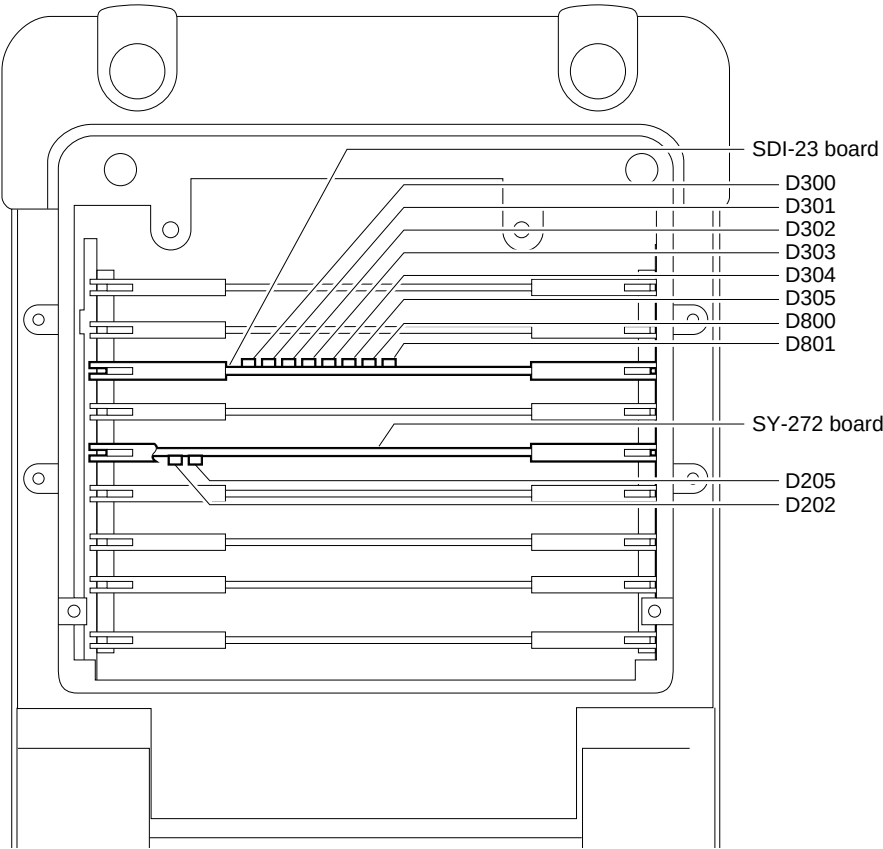
Switches

Note

Do not change settings of the factory-use switches.

Ref.No.	Switch name	Description	Factory setting
S101	SYSTEM RESET	Press to reset system control operation	—
S201	MAINTE MODE START	Press to start the maintenance mode	—
S202-1	EXTENDED MENU	Turns on and off the indication of extended setup menu OFF: Not indicated ON: Indicated	OFF
S202-2	MAINTE MODE ACEESS	OFF: Not accessible to the maintenance mode from the control panel ON: Accessible to the maintenance mode from the control panel	OFF
S202-3		Factory use	OFF
S202-4		Factory use	OFF
S202-5		Factory use	OFF
S202-6		Factory use	OFF
S202-7	J/UC	OFF: for Japan ON: except Japan	ON
S202-8	525/625	OFF: 525/60 model ON: 625/50 model	OFF

1-10. Description on Internal Indicators



SDI-23 Board**Note**

The indicators D302 to D305 function properly when the received signal conforms to the EDH* (with D301 lit).

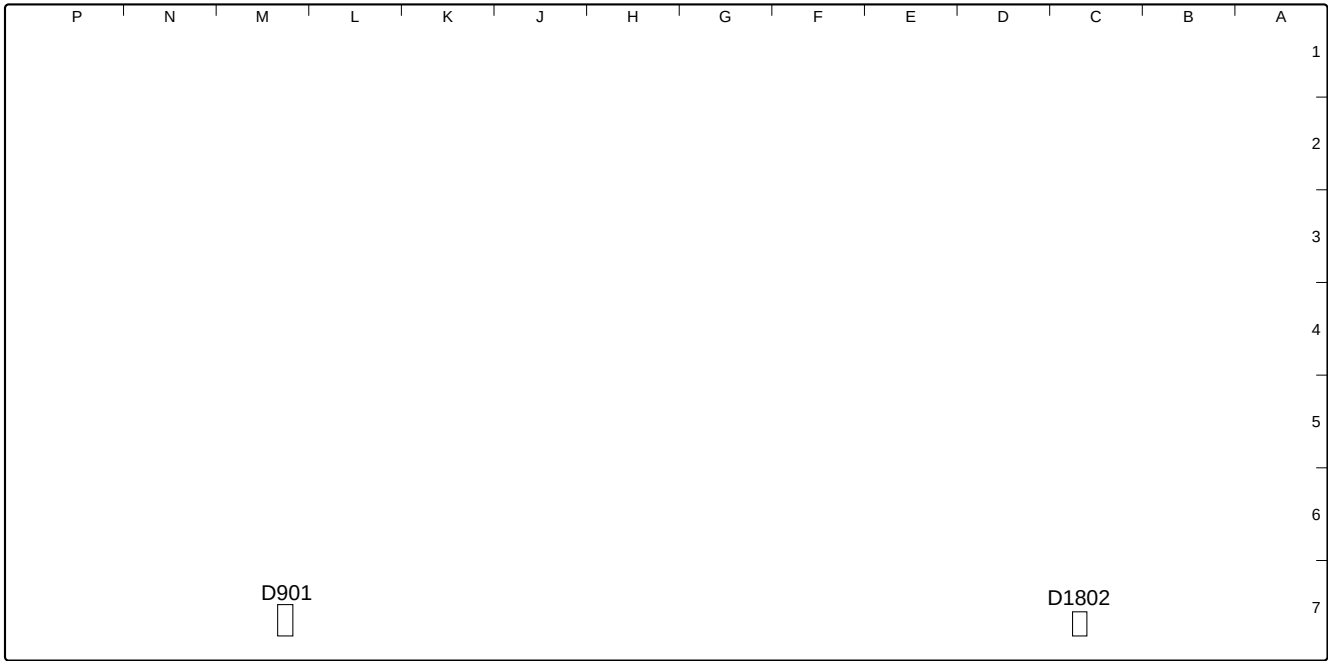
* EDH : Error Detection and Handling

Ref.No.	Indicator name	Color	Description	Normal state
D300	SDI INPUT EXIT	Green	Lit when detecting the SDI format signal input at SDI IN connector	On
D301	RX EDH VALIDITY	Green	Lit when the received signal at SDI IN connector conforms to the EDH	On
D302	RX EDH OTHER ANC ERROR	Red	Lit when another ancillary data exists in the EDH portion of the received signal at SDI IN connector	Off
D303	RX EDH ACTIVE PICTURE ERROR	Red	Lit when an active picture EDH error is detected from the received signal at SDI IN connector	Off
D304	RX EDH FULL FIELD ERROR	Red	Lit when a full-field EDH error is detected from the received signal at SDI IN connector	Off
D305	RX EDH ANCILLARY DATA ERROR	Red	Lit when an ancillary data EDH error is detected from the received signal at SDI IN connector	Off
D800	SDI TRS NO ERROR	Green	Lit when the SDI format signal is normally received at SDI IN connector	On
D801	VCO ADJ OF MAINTENANCE	Green	Lit when EVR (electronic volume) data comes near its proper value during VCO free-run adjustment in the maintenance mode	—

SY-272 Board

Ref.No.	Indicator name	Color	Description	Normal state
D202	SY STS1	Green	Blinks when the SYS CPU normally operates	Blinking
D205	SY ERR	Red	Lit when the SYS CPU does not normally operate Blinks when communication between SYS CPU and other CPU/ MPU (SV CPU or KY MPU) is under abnormal conditions	Off

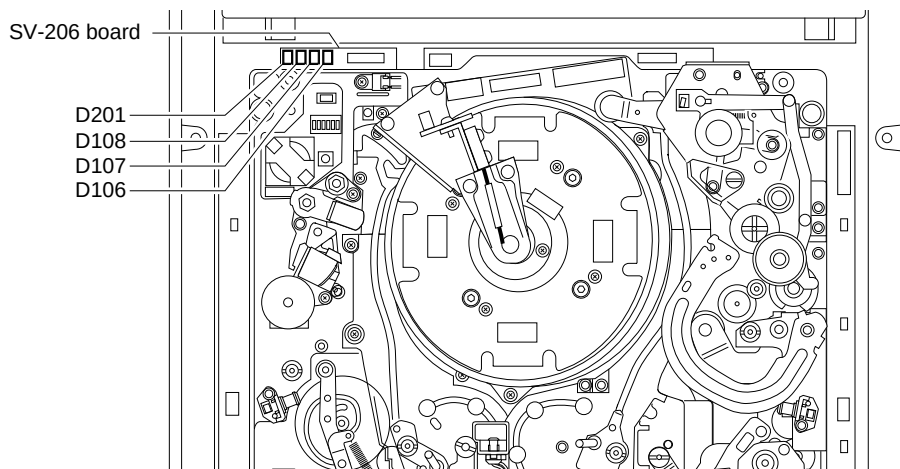
DM-121 Board



DM-121 Board (Side B)

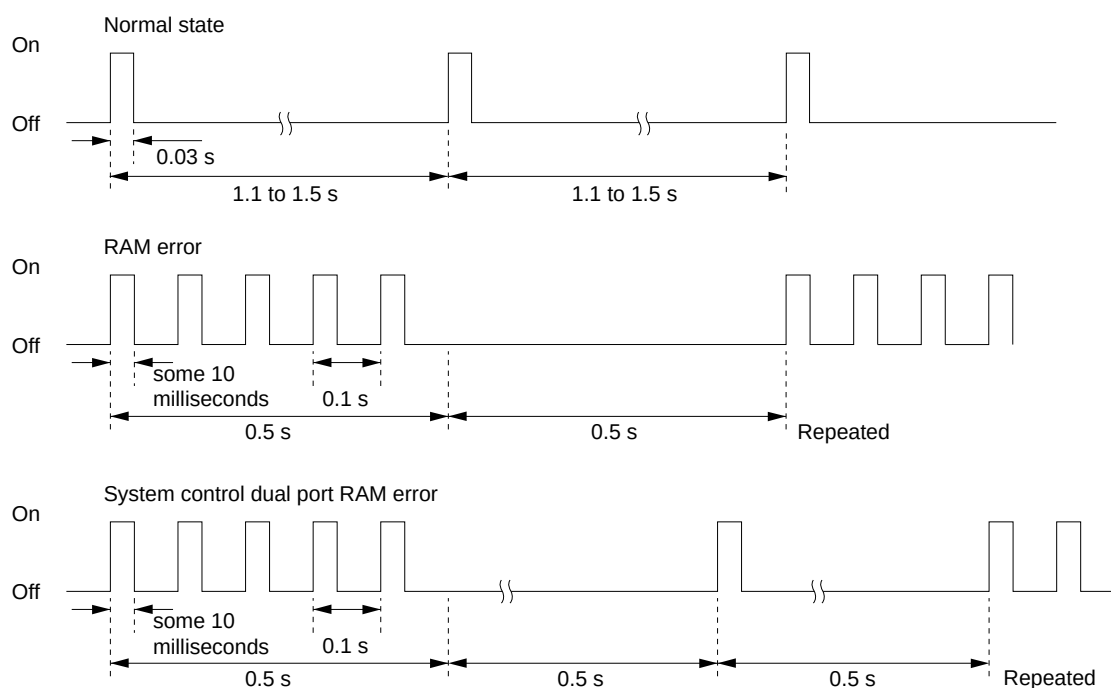
Ref.No.	Indicator name	Color	Description	Normal state
D901	ADJUST	Green	Normally blinks for some ten milliseconds at intervals of about 1 sec. In adjustment mode (with S901-1 turned on), or when a cassette tape is not inserted under the setup menu ITEM-713 is set to MD/DM, the blink is inverted	Blinking
D1802	TBC	Green	Blinks once a second during TBC micro-computer operation	Blinking

SV-206 Board



Ref.No.	Indicator name	Color	Description	Normal state
D106	SV	Green	Indicates by changing blinking intervals the result of communication check to ROM and RAM at power on (See illustration below)	Blinking
D107		Yellow	Not used	Off
D108	TRVR	Yellow	Not used	Off
D200	DRUM	Green	Blinks during drum microcomputer (IC212) operation Normally blinks for 30 milliseconds at intervals of about 1 sec. When the drum is locked, the blink is inverted	Blinking

Blinking pattern of D106

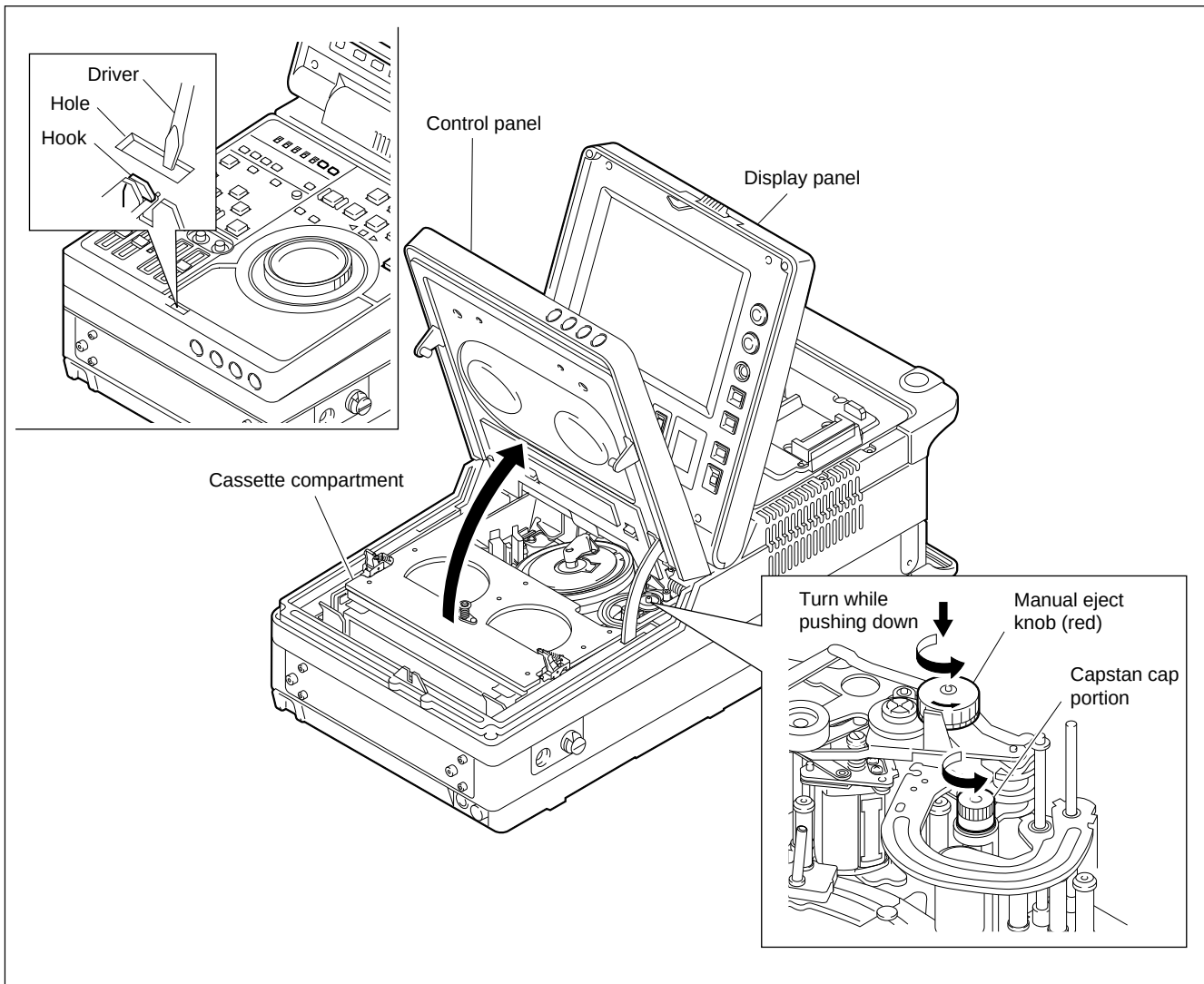


1-11. How to Take Out the Cassette When the Tape is Slacked

1. Open the display panel.
2. Insert a driver or similar item into the rectangular hole and unhook as shown in the figure. Open the control panel.
3. Turn the manual eject knob (red) counterclockwise while pushing down.
4. Tape starting to slack, turn the capstan cap portion counterclockwise to take up the tape to the T reel.
5. Repeat procedures 3 and 4 until the cassette compartment is opened.

Notes

- Stop turning the manual eject knob just when the cassette compartment is opened.
- If the cassette compartment cannot be closed after taking the tape out by the above procedure, try to turn the manual eject knob clockwise two or three turns while pushing down.



1-12. Cleaning Clogged Video Heads

When the video heads are clogged, be sure to clean using a cleaning tape.

If the use of the cleaning tape does not solve clogged, clean using a cleaning cloth.

When using the cleaning tape, use the specified tape (or cloth) and follow only the instructions with an extreme care.

If not, the video heads may be damaged or worn out.

For details on how to clean, refer to Section 4 “Periodic Maintenance and Inspection”.

Reference

To clean using a cleaning tape:

4-2-1. Using Cleaning Tape

To clean using a cleaning cloth:

4-2-2. General Information for the Use of Cleaning Cloth

4-2-3. Cleaning of Video Heads and Tape Running Surface of Upper Drum

Specified Cleaning Tape

BCT-5CLN

1-13. Power Protection

1-13-1. Overcurrent Protection

Overcurrent in the internal circuitry will trip the overcurrent protective device and will automatically power down of the unit. If the device trips and the unit cannot be powered, turn off the power switch and disconnect the cable connected at the DC IN connector and/or the battery, before checking the circuit for overcurrent.

After the check, turn on the power switch. The unit will be powered if the cause of overcurrent is cleared.

1-13-2. Information on IC Link

The unit is equipped with two IC links. One is F1 on the FL-251 board, and the other is PS600 on the CP-317 board. F1 on the FL-251 board will blow when the overcurrent flows because of internal circuit failure. PS600 on the CP-317 board will blow by overcurrent when an equipment connected at the DC OUT connector fails. If some IC link blows, turn off the power switch and disconnect the cable connected at the DC IN connector and/or the battery, before checking the circuit for overcurrent.

When replacing, be sure to use the specified part.

WARNING

The IC links are critical for safe operation. Be sure to use the specified part to avoid the danger of a fire or electric shock.

Board	Ref.No.	Description	Part No.
FL-251	F1	IC LINK 0.4 A	△ 1-576-122-21
CP-317	PS600	IC LINK 2 A	△ 1-533-282-21

1-14. Battery for Memory Backup

The unit is equipped with a battery for the memory (IC120) backup on the SY-272 board. When replacing, be sure to use the specified part.

Replacement Part:	BT101/SY-272 board
Part Description:	M4T28-BR12SH1 (lithium battery)
Part No.:	1-767-156-11
Recommended Replacement Period:	Every seven years

In the memory, the following data is stored. When the battery is dead, or replaced with a new one, resetting current menu, menu banks 1 to 4, and calender/clock is required. For details on how to reset, refer to the operation manual supplied with the unit.

When the battery is dead, or replaced, error logs are all cleared.

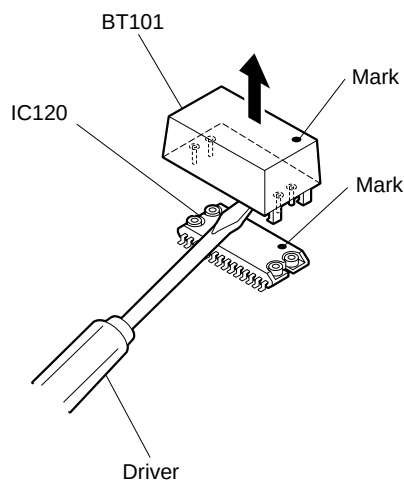
- Current menu
- Menu banks 1 to 4
- Calender/Clock

Replacement

Note

When replacing the battery, ensure that a mark on the battery is correctly oriented as shown in the following figure.

1. Disconnect the SY-272 board. (Refer to Section 1-8-1.)
2. Insert a flat blade driver between BT101 and IC120 to remove the battery.
3. Carefully install a new battery, ensuring that the mark's on the BT101 and IC120 are aligned.
4. Reset the current menu and menu banks. (Refer to the operation manual.)
5. Reset the calender/clock. (Refer to Section “3-3-3. Setting Mode”.)



1-15. Fixtures and Adjustment Equipment List

1-15-1. Fixtures

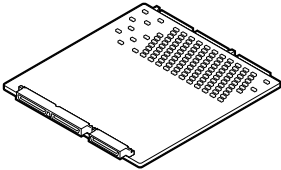
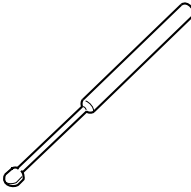
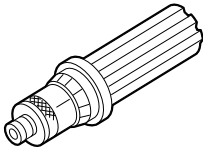
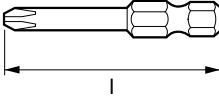
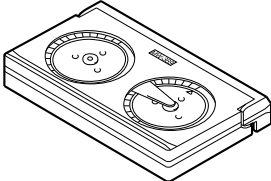
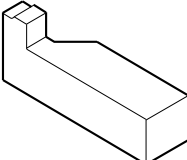
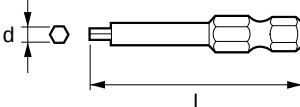
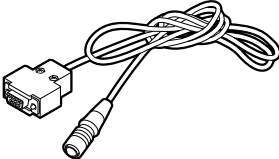
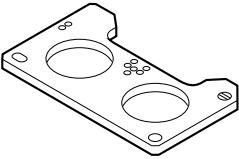
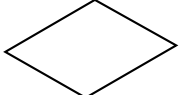
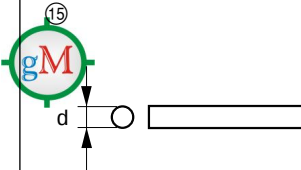
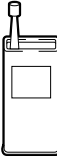
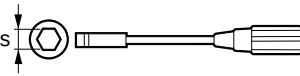
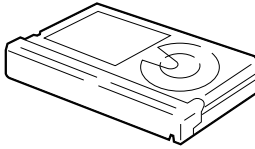
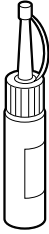
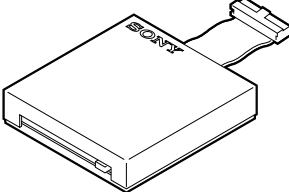
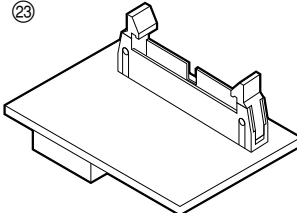
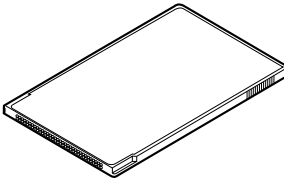
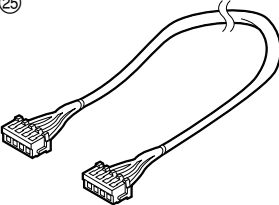
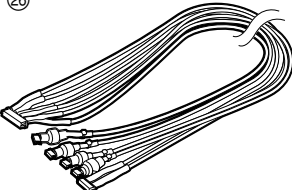
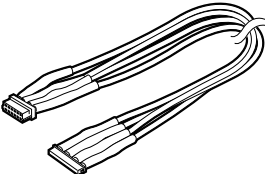
Note

- The tools used only in the maintenance manual Part 2 are also described.
- Refer to the maintenance manual Part 2 Volume 1 (Section 1-4) for details of the alignment tapes.

Fig.	Part No.	Name	For use	Description*
1	A-8321-000A	Extension board (EX-706)	Extension of plug-in boards	P2
2	J-6035-070-A	Extraction tool (for PLCC socket)	Extraction of PLCC IC	P2
3	J-6080-840-A	Inspection mirror	Tape curl check	P2
4	J-6252-520-A	Torque screwdriver (12 kgf·cm) (1.2 N·m) [JB-5252]	Tightening screws of cabinet for installing and removing	P1/P2
	J-6325-400-A	Torque screwdriver (3 kgf·cm)	Tightening screws (for M1.4 and M2 bit)	P1/P2
5	J-6325-110-A	Torque screwdriver bit (for M1.4)	Tightening screws on mech. deck (l = 75 mm)	P1/P2
6	J-6325-380-A	Torque screwdriver bit (for M2)	Tightening screws on drum, capstan, reel motor and boards (l = 162 mm)	P1/P2
7	J-6322-420-A	Tape guide adjustment driver (45)	Tape path adjustment	P2
8	J-6323-530-A	Stop washer fastening tool	Installation of stop washer	P2
9	J-6323-890-A	Torque cassette (FWD BACK TEN.) [MW-389]	FWD back tension REV back tension measurement	P2
10	J-6324-150-A	Reel table height adjustment tool [MW-415]	Reel height check	P2
11	J-6326-120-A	Hexagon bit (for torque driver)	Tightening screws on mechanical deck for installing and removing (d = 1.5 mm, l = 85 mm)	P2
12	J-6530-380-A	Conversion cable, 6P - 9P	Rewrite internal software	P2
13	J-6530-880-A	Cassette reference plate	Reel height adjustment	P2
14	3-184-527-01	Cleaning cloth (15 cm×15 cm)	Cleaning	P1/P2
15	3-649-266-01	Parallel pin (d = 1.6 mm)	Fixing position of cam gear	P2
	3-703-358-04	Parallel pin (d = 2.0 mm)	Fixing position of threading gear/drawing arm when installing	P2
16	7-432-114-11	Screw locking compound (200g)	Inhibits loosening of screws	P2
17	7-651-000-10	Sony grease SGL-601 (50 g)		P2
	7-651-000-11	Sony grease SGL-801 (50 g)		P1/P2
18	7-661-018-18	Diamond oil NT-68 (50 ml)		P2
19	7-700-751-01	Nut driver (s = 4.5 mm)	CTL/AT head height adjustment	P2
20	8-960-096-01	Alignment tape, CR2-1B	Tracking alignment	P2
	8-960-096-41	Alignment tape, CR5-1B (METAL)	Video alignment	P2
	8-960-096-51	Alignment tape, CR2-1B PS	Tracking alignment (for PAL)	P2
	8-960-097-44	Alignment tape, CR5-2A (OXIDE)	Betacam video alignment	P2
	8-960-097-45	Alignment tape, CR8-1A (OXIDE)	Betacam audio alignment	P2
	8-960-096-91	Alignment tape, CR5-1B PS (METAL)	Video alignment (for PAL)	P2
	8-960-096-86	Alignment tape, CR8-1B PS (METAL)	Audio alignment (for PAL)	P2
	8-960-098-44	Alignment tape, CR5-2A PS (OXIDE)	Video alignment (for PAL)	P2
	8-960-098-45	Alignment tape, CR8-1A PS (OXIDE)	Audio alignment (for PAL)	P2
21	9-919-573-01	Cleaning liquid	Cleaning	P1/ P2
22	A-8319-485-A	IC memoy card box, CDS-20 assembly	Software update	P2
23	A-8322-417-A	CN-1935 board	Connection of the IC memory card box	P2
24	1-772-003-11	IC memoy card (2 MB), MB98A81183	Software update	P2
	1-772-004-11	IC memoy card (4 MB), MB98A81273	Software update	P2
25	1-958-196-14	Extension harness (SR66-EQ3)	Extension of the RP-107 board	P2
26	1-959-894-11	Extension harness (DR1)	Extension of the RP-107 board	P2
27	1-959-895-11	Extension harness (DR2)	Extension of the RP-107 board	P2

*: P1= Used in the maintenance manual Part 1./P2= Used in the maintenance manual Part 2.

1-15. Fixtures and Adjustment Equipment List

① 	② 	③ 	④ 
⑤ 	⑥ 	⑦ 	⑧ 
⑨ 	⑩ 	⑪ 	⑫ 
⑬ 	⑭ 	⑮ 	⑯ 
⑰ 	⑱ 	⑲ 	⑳ 
㉑ 	㉒ 	㉓ 	㉔ 
㉕ 	㉖ 	㉗ 	

1-15-2. Equipment for Adjustment

It is recommended to use the equipment listed below or the equivalents.

Each equipment is available as a standard product.

Equipment	Model name	Remarks	Description ^{*1}
Serial digital component video signal generator	Tektronix TSG-422-OP.1S	for generating 4:2:2 format digital signal	P2
Analog composite video signal generator	Tektronix TSG-170A	for 525/60 system	P2
Serial digital component monitor	Tektronix WFM601		P2
Analog composite waveform / vector monitor	Tektronix 1750 or 1780R	for measuring analog composite signal for 525/60 system	P2
	Tektronix 1751 or 1781R	for measuring analog composite signal for 625/50 system	
Oscilloscope	Tektronix 2465B		P2
Analog component waveform monitor	Tektronix WFM300	for video phase adjustment	P2
Spectrum analyzer	Advantest R3261A	with external trigger function bandwidth: more than 100 MHz	P2
Network analyzer	Anritsu MS420B		P2
Audio signal generator	Tektronix SG505-OP.02		P2
Audio analyzer	Tektronix AA501A-OP.02	for measuring distortion and levels	P2
Audio level meter	Hewlett-Packard HP3400A		P2
Digital voltmeter	Advantest TR6845		P2
Composite video monitor	Sony BVM-14F5U or BVM-14F5E ^{*2}		P2
	OP. BKM-24N OP. BKM-25P	for 525/60 system for 625/50 system	
Terminator	75 Ω BNC type		P2
Recording tape	Sony Betacam SP tape (BCT-30MA, etc.)		P2
	Sony Betacam tape (BCT-20G, etc.)		P2

*1: P2= Used in the maintenance manual Part 2.

*2: Use the composite video monitor that is applicable to the places in the world

1-16. Settings for External Editors

1-16-1. Time Code Settings for Recorder

When editing with an editor capable of the 1st-edit (BVE-2000)

- Time code operation block on the control panel
 - INT/EXT switch ⇒ INT
 - PRESET/REGEN switch ⇒ PRESET
 - F-RUN/R-RUN switch ⇒ F-RUN

When editing directly from VTR to VTR

Note

Make sure that the setting of ITEM-610 on the setup menu is as follows:

- ITEM-610: REGEN CONTROL MODE ⇒ AS & IN
- Time code operation block on the control panel
 - INT/EXT switch ⇒ INT
 - PRESET/REGEN switch ⇒ PRESET
 - F-RUN/R-RUN switch ⇒ R-RUN

1-16-2. VTR Constant Settings for External Editors

The following constants are standard for each type and system listed.

When using an external editor which requires the VTR constants, use the settings listed. VTR constants must also be set when switching between the 525 and 625 line systems.

System	VTR CONSTANT 1								VTR CONSTANT 2							
	Data No.								Data No.							
	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8
525/60 System	20	60	00	96	05	05	04	8B	0A	08	FB	00	8D	3D	FF	4C
625/50 System	21	60	00	7D	05	05	04	8B	0A	07	FB	00	8F	4B	FF	4C

Values are represented in hexadecimal

Notes

- Set the data No. 8 of VTR CONSTANT 1 to 0A for the following editors.
 - BVE-900 ROM version 1.08 or lower
 - BVE-600 ROM version 1.01 or lower
- If the unit is controlled by the editor, be sure to set ITEM-401 on the setup menu as follows:
 - ITEM-401: FUNCTION MODE AFTER CUE-UP ⇒ STOP

1-16-3. System Phase Adjustment

An analog composite signal input at the VIDEO REF.IN or VIDEO INPUT connector of the unit should be within specifications in SC-H.

In combination with a digital switcher

The system phase adjustment is unnecessary usually.

Refer to the operation manual supplied with the digital switcher for details.

In combination with an analog switcher

The system phase adjustment for the unit is necessary.

Refer to the operation manual supplied with the analog switcher for details.

1-16-4. Setup Menu Setting of ITEM-701

When incorporating the unit into an editing system

Set ITEM-701 on the setup menu as follows;

- ITEM-701: SELECTION OF VIDEO/SYNC DELAY $\Rightarrow$ VIDEO

To prevent the picture shift in switching between when editing from VTR to VTR

Be sure to set the data No. of ITEM-701 for a recorder to "SYNC".

1-17. Setup Menu

This section explains the F-series items on the setup menu, which are for use during adjustment or maintenance.

For details on H-, 9- and B-series items, refer to the operation manual supplied with the unit.

1-17-1. Menu Operation

Preparation

The menus for F-series items are usually not accessible. To display them, internal switch setting for the SY-272 board is required. For details on the switch function, refer to Section 1-9.

- S202-1/SY-272 board ⇒ ON

Note

The menus for F-series items are exclusively for adjustment. After adjustment is completed, be sure to return them to their normal position.

Activating the menu

1. Press the MENU button.
2. Press the JOG dial to enter the JOG mode. (JOG indicator will light at this time.)
3. Turn the JOG dial while pressing the PLAY button.

Basic operation

• To select ITEM

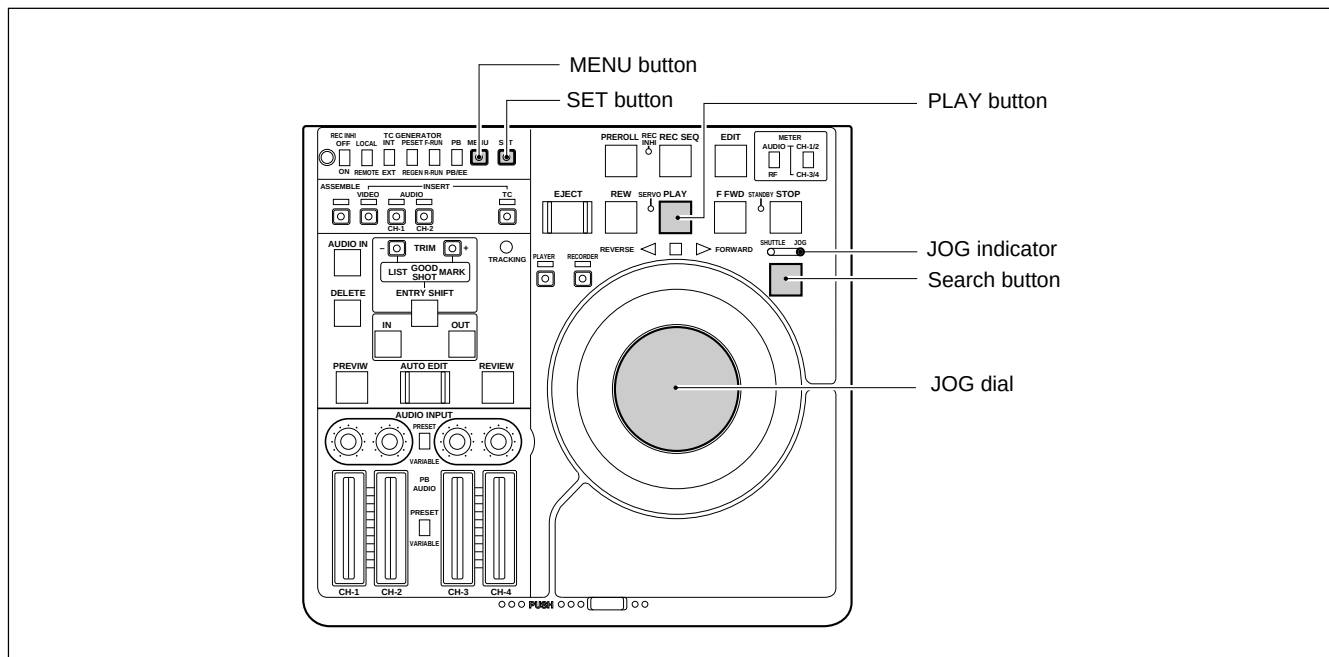
Turn the JOG dial while pressing the PLAY button to move the cursor to the desired ITEM.

• To change DATA

Press the search button. A window will open. Turn the JOG dial to change the setting value.

• To enter the setting value

Press the SET button.



1-17-2. F-Series items

No.	ITEM	DATA	Description
F01	AUDIO NR IN SP MODE	☐ ON SW	Note This item is used exclusively for longitudinal audio playback adjustment for 625/50 system After adjustment is completed, return to the factory setting "ON" Turns on and off the Dolby NR when using a metal tape ON: Dolby NR is turned on usually SW: Dolby NR is turned on and off depending on the setting of the sub LCD menu (in Audio setting page) Note When using an oxide tape, follows the sub LCD menu setting regardless of the above setting
F02	EMERGENCY TAPE PROTECTION	☐ ENA DIS	Note This item is used exclusively for servo and mechanical adjustment After adjustment is completed, return to the factory setting "ENA" Selects whether emergency tape protection operation is enabled or not when VTR detects error in tape transport mechanism ENA: Tape protection operation is enabled DIS: Tape protection operation is disabled
F16	DEVICE TYPE MODIFY:0H	☐ 0 1 FFFF	Determines response data to 9-pin remote command DEVICE TYPE REQUEST (00h, 11h) 0: Returns the original device type data of the unit Except 0: Returns the set values as they are: The higher-order two digits are for DATA-1 The lower-order two digits are for DATA-2 Note Any selection of the above does not influence the whole VTR operation including TTP If this item is set to values other than the factory-setting (DATA:0000), the operation of the unit is not ensured under the 9-pin remote command control.
F21	PROCESS CONT VR LOCAL ENABLE	☐ OFF ON	Selects whether PROCESS CONTROL VR and sub LCD menu setting (in Video setting page) are enabled or not, when LOCAL DISABLE command is received through the 9-pin remote connector or the setup menu "006: LOCAL FUNCTION ENABLE" is set to "all disable" OFF: Settings of PROCESS CONTROL VR and sub LCD menu are disabled ON: Settings of PROCESS CONTROL VR and sub LCD menu are enabled

1-18. Threading End and Unthreading End States

1. Threading end state

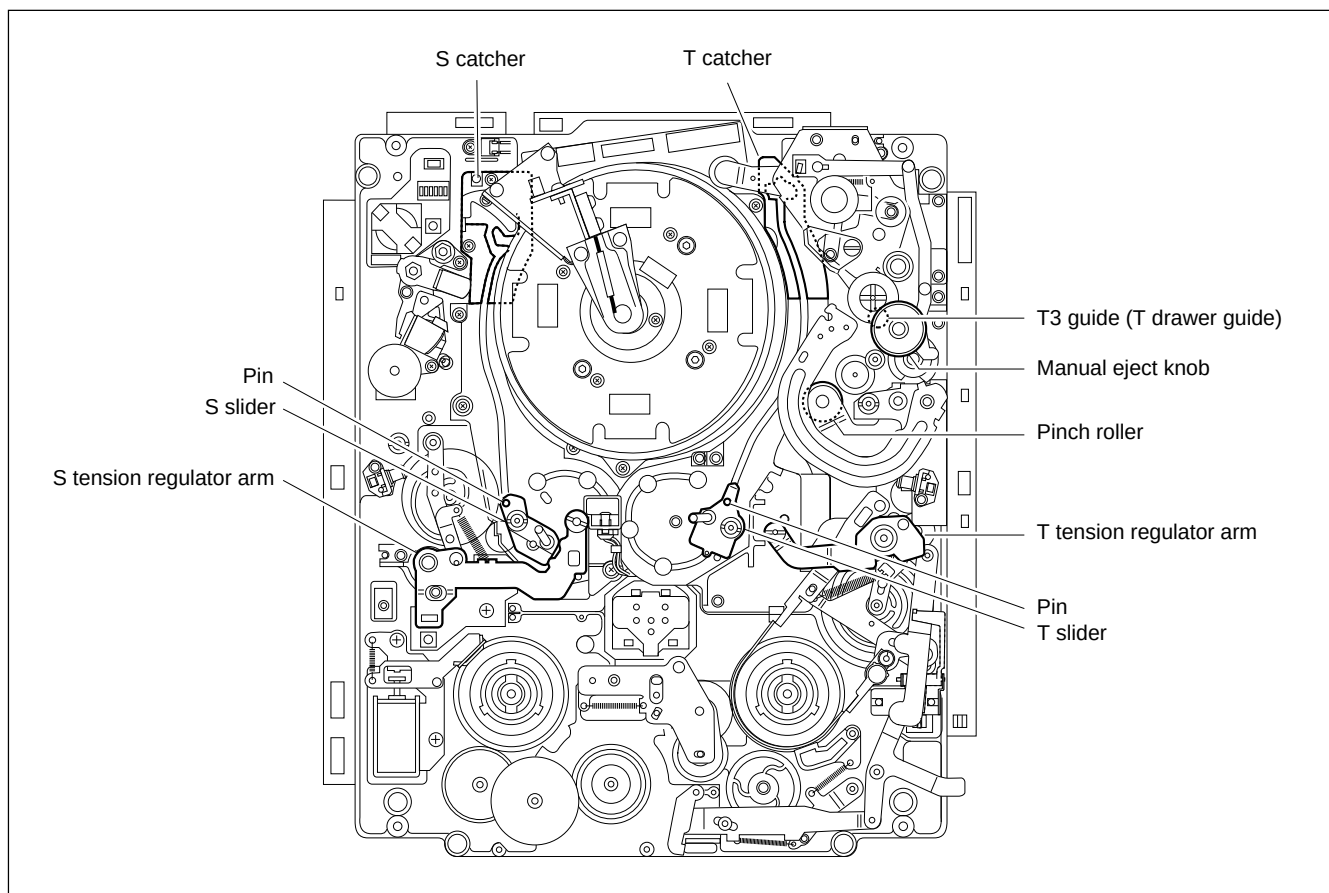
In the threading end state, the S and T sliders move from the reel table side to both sides of the drum and the pins of the S and T sliders stop in the V grooves of each catcher. At the same time, the S tension regulator arm, T3 guide, pinch roller, and T tension regulator arm move to the positions shown in the figure.

- To enter the threading end state using tape;
 - (1) Turn on the power.
 - (2) Insert a cassette tape into the cassette compartment.
 - (3) Close the control panel or cassette compartment.
- To enter the threading end state manually;
Turn the manual eject knob clockwise.

Note

Stop the rotation of the manual eject knob when the above mentioned threading end state above is just entered. If not, the related gears may be damaged.

- To enter the threading end state with the cassette compartment removed (during tape path adjustment);
Refer to Section 2-1 in the maintenance manual Part 2 Volume 1.



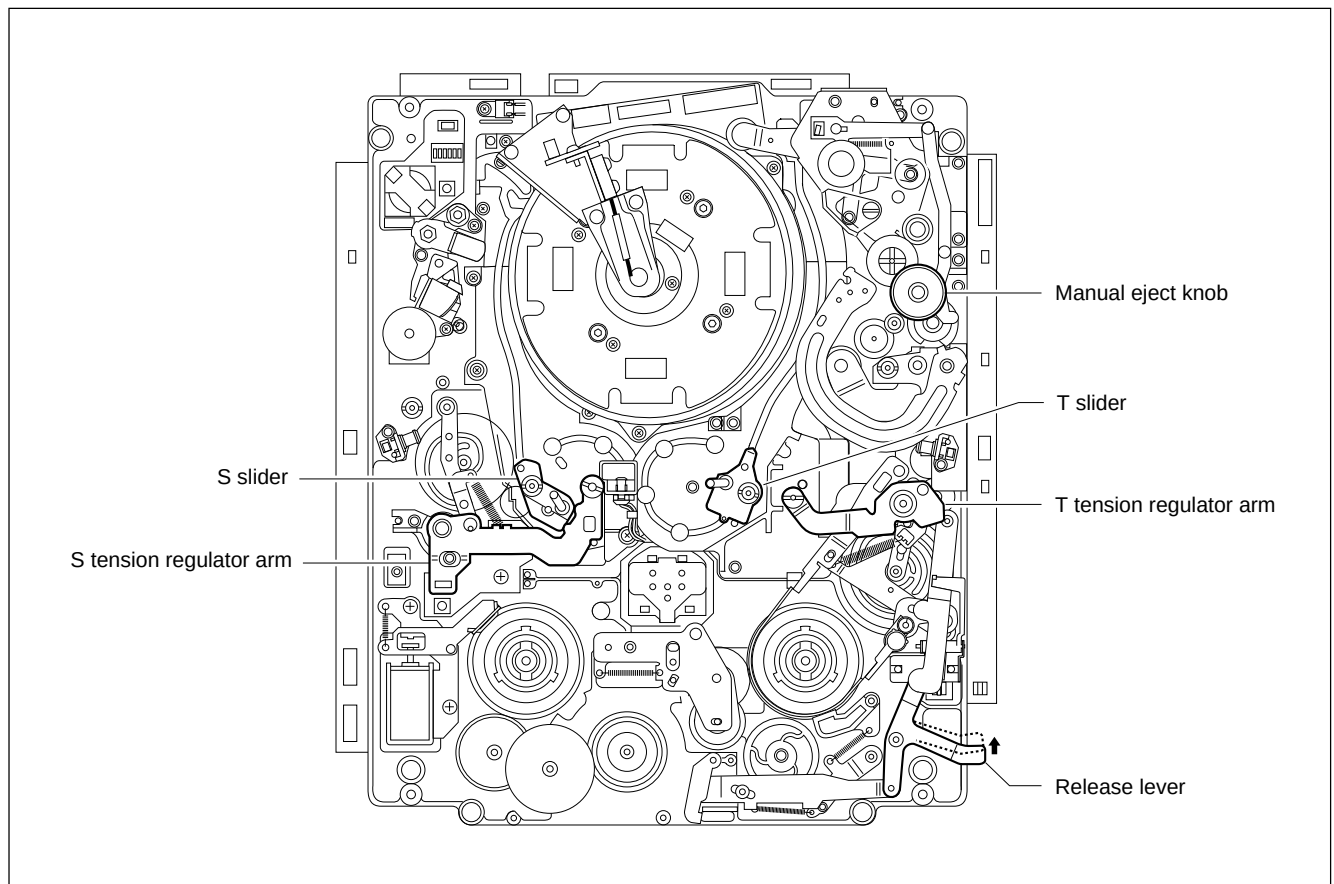
2. Unthreading end state

In the unthreading end state, the S and T sliders move from the S and T catchers to the reel table side, and then stop. At the same time, the S tension regulator arm and T tension regulator arm are located in the positions shown in the figure. This state is the same as the standby. In this case, the cassette compartment is put into the up state.

- To enter the unthreading end state;
Turn on the power and press the EJECT button.
- To enter the unthreading end state manually;
Turn the manual eject knob counterclockwise until the cassette compartment is up.

Notes

- Stop the rotation of the manual eject knob after becoming the cassette compartment in the up position. In case that the cassette compartment is removed, stop the rotation of the knob after moving the release lever in the direction of the arrow to the position indicated by the dotted line.
- For how to enter the unthreading end state with the cassette tape inserted, refer to Section 1-11.



Section 2

Error Message

2-1. Overview of Error Message

This unit has self-diagnostics function.

When trouble is detected, a WARNING indicator next the LCD monitor is lighted immediately, and an error message is displayed on the sub LCD.

Also, an error code and error message are superimposed on the video monitor connected to the VIDEO OUTPUT 2 (SUPER) connector and LCD monitor.

Furthermore, as for the some error codes, object which error occurred is displayed as sub error message on the video monitor and LCD monitor.

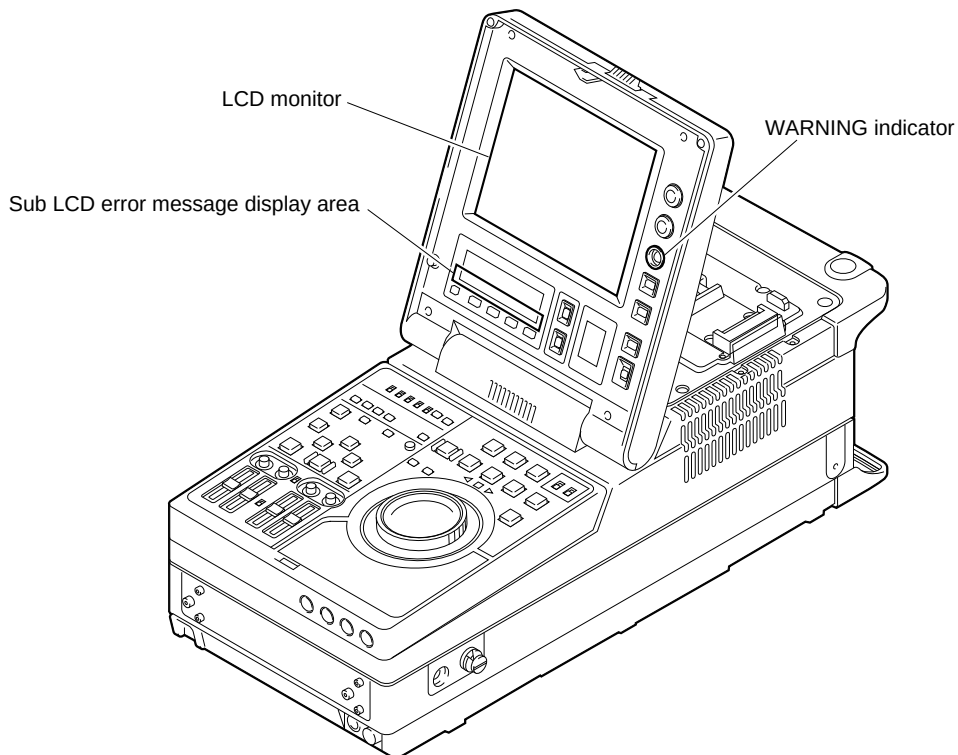
Notes

- To superimpose the error message on the video monitor, set the SUPER item to ON by using the general setting page of the sub LCD menu. (For sub LCD menu, refer to the operation manual.)
- The error messages with error code are memorized to NV-RAM (Non-volatile RAM) as the error logging data.
(Refer to Section 3 for the error logging data.)
- The messages on the sub LCD differ from the messages which are superimposed on the LCD monitor (video monitor) in some items.

ERROR-01

REEL TROUBLE-1

**Ex. Superimposed on Video
Monitor and LCD monitor**



Error Message/Code Display Area and WARNING Indicator

Error messages are described on Section 2-2 in the order of list.

Error List

Code	Message on sub LCD display area	Page	Description
01	REEL TROUBLE	2-4	Tape slacking is detected in the unthreading operation.
02	REEL TROUBLE	2-5	Tape slacking or tape breaking is detected in the SEARCH, FF, or REW mode.
03	REEL TROUBLE	2-6	Tape slacking, or tape breaking is detected in the REC or PLAY mode.
04	REEL TROUBLE	2-7	A malfunctional tape transport speed is detected in the FF or REW mode.
06	TAPE TENSION	2-7	Excessive tape tension is detected in the REC or PLAY mode.
07	CAPSTAN TROUBLE	2-8	Abnormal capstan motor rotation speed is detected in the REC, PLAY, SEARCH, or REW mode. Malfunction of capstan FG is detected in the REC or PLAY mode.
08	DRUM TROUBLE	2-8	Malfunction of drum motor is detected.
09	FUNC. CAM MOTOR	2-9	Malfunction of threading or unthreading operation is detected.
10	HUMID	2-9	Dew condensation is detected.
12	TAPE TOP SENSOR	2-10	Malfunction of tape top sensor is detected.
13	TAPE END SENSOR	2-10	Malfunction of tape end sensor is detected.
14	FAN MOTOR	2-11	Malfunction of cooling fan motor is detected.
15	FULL TOP SENSOR	2-11	Malfunction of tape full top sensor is detected.
92	INTERNAL I/F 1	2-12	Abnormality in the interface between SYS CPU (on SY-272 board) and other CPU/MPU is detected.
93	CPU INITIALIZE	2-12	Abnormality is detected in the communication between SERVO CPU (SV-206 board) and DRUM MPU (SV-206 board).
96	SY NV-RAM ERROR	2-13	The abnormal operation of an NV-RAM (on SY-272 board) for the system control system is detected.
97	SV NV-RAM	2-13	The abnormal operation of an NV-RAM (on SV-206 board) for the servo system is detected.
98	RF NV-RAM ERROR	2-14	The abnormal operation of an NV-RAM (on DM-121 board) for the RF system is detected.
99	INTERNAL I/F 2	2-14	Abnormality in the interface between SYS CPU (on SY-272 board) and SERVO CPU (on SV-206 board) or MPU (on DM-121 or SDI-23 board) is detected.

Notes

- Error codes 01 through 13, and 15 are detected in the SV-206 board.
Error code 14 is detected in the SY-272 board.
Error codes 92 through 99 are detected in the SY-272 board.
- There are two error groups of error codes: VTR and OTHERS. If errors occur in multiple error groups, the error message of each group are switched at two-second intervals.
Also, if multiple errors occur in error group, the priority level of each group display are as follows:
VTR: 97, 02, 03, 04, 07, 06, 01, 09, 08, 10, 12, 13, 14, 15
OTHERS: 92, 96, 98, 99, 93

2-2. Details of Error Messages

CAUTION

The “protection mode” described in this section means the servo control system automatically stops the tape transport and drum motor rotation, and maintains this state. The DNW cannot be automatically recovered to the normal state when the DNW once enters the protection mode. Be sure to turn the power on again under the absence of the cassette tape.

If the protection mode is entered with the cassette tape inserted, take out the cassette tape manually with reference to “1-11. How to Take Out the Cassette When the Tape is Slacked”. Never turn on the power again without taking out the cassette tape. This may damage the tape.

Note

The messages on the sub LCD differ from the messages which are superimposed on the LCD monitor in some items. In this section, each message indicates as following example.

Ex. : ERROR-09 FUNC. CAM MOTOR TIME OUT
(FUNC. CAM MOTOR)

↑
 Message on sub LCD

↑
 Message superimposed on LCD monitor

ERROR-01 REEL TROUBLE - 1
(REEL TROUBLE)

Description: Tape slacking was detected during unthreading.

Detecting condition: When no take-up reel FG can be detected in the unthread operation.

Sub error message: None

Possible causes:

- Cassette compartment trouble or installation defect
 - * The reel did not rotate because the cassette was lifted-up from the specified position.
- FG sensor trouble in take-up reel
- Take-up reel FG waveform shaper circuit (SV-206 board) trouble
- Take-up reel brake trouble
- Harness disconnection
- Take-up reel table height adjustment defect

Protecting operation: Enters the protection mode.

CAUTION

Be sure to take out the cassette manually (refer to Section 1-11). Do not turn on the power again without taking out the cassette. This may damage the tape.

ERROR-02 REEL TROUBLE - 2

(REEL TROUBLE)

Description:	Tape slacking or tape breaking was detected in SEARCH, FF, or REW mode.
Detecting conditions:	1) When the take-up value is lower than the specified value with respect to the tape supply value. 2) When the detect voltage of the supply tension sensor is lower than the specification continuously for some seconds. 3) When the supply reel and take-up reel do not coincide in rotation direction continuously for more than five seconds.
Sub error message:	None
Possible causes:	• Cassette compartment trouble or installation defect * The reel did not rotate because the cassette was lifted-up from the specified position. • FG sensor trouble in supply reel motor or take-up reel • Supply or take-up reel FG waveform shaper circuit (SV-206 board) trouble • Supply reel motor trouble • Supply reel motor drive circuit (SV-206 board) trouble • Capstan motor trouble • Capstan motor drive circuit (SV-206 board) trouble • Capstan FG waveform shaper circuit (SV-206 board) trouble • Take-up torque insufficiency during REW due to supply tension sensor or supply tension detect circuit (SR-65 board) trouble • Servo adjustment defect on capstan, reel, and supply tension sensor • Supply reel brake trouble • Supply reel brake solenoid drive circuit (SV-206 board) trouble • Harness disconnection • Reel table height adjustment defect • Tape path and drum troubles • Tape abnormality (The winding state has a problem.)
Protecting operation:	Enters the protection mode. The normal state may be returned after the protection mode is entered at the end of the tape. CAUTION Be sure to take out the cassette manually (refer to Section 1-11). Do not turn on the power again without taking out the cassette. This may damage the tape.

ERROR-03 REEL TROUBLE - 3
(REEL TROUBLE)

Description:	Tape slacking or tape breaking was detected in the REC or PLAY mode.
Detecting conditions:	1) When the take-up value is lower than the specified value with respect to the tape supply value. 2) When the tension value calculated from the supply tension sensor output is less than 15 g continuously for more than three seconds. 3) When the supply reel and take-up reel do not coincide in rotation direction continuously for more than five seconds.
Sub error message:	None
Possible causes:	• Cassette compartment trouble or installation defect ※ The reel did not rotate because the cassette was lifted-up from the specified position. • FG sensor trouble in supply reel motor or take-up reel • Supply or take-up reel FG waveform shaper circuit (SV-206 board) trouble • Supply reel motor trouble • Supply reel motor drive circuit (SV-206 board) trouble • Capstan motor trouble • Capstan motor drive circuit (SV-206 board) trouble • Capstan FG waveform shaper circuit (SV-206 board) trouble • Servo adjustment defect on capstan, reel, and supply tension sensor • Supply reel brake trouble • Supply reel brake solenoid drive circuit (SV-206 board) trouble • Harness disconnection • Reel table height adjustment defect • Tape path and drum troubles • Tape abnormality (The winding state has a problem.)
Protecting operation:	Stops the tape transport and enters the rest state. CAUTION Be sure to take out the cassette manually (refer to Section 1-11). Do not turn on the power again without taking out the cassette. This may damage the tape.

ERROR-04 REEL TROUBLE - 4
(REEL TROUBLE)

Description:	Abnormal tape transport speed was detected in the FF or REW mode.
Detecting condition:	When the tape speed calculated from the supply reel FG and take-up reel FG is under a half of the specified tape speed continuously for more than ten seconds.
Sub error message:	None
Possible causes:	• Cassette compartment trouble or installation defect * The reel did not rotate because the cassette was lifted-up from the specified position. • FG sensor trouble in supply reel motor or take-up reel • Supply reel motor trouble • Supply or take-up reel FG waveform shaper circuit (SV-206 board) trouble • Supply reel motor drive circuit (SV-206 board) trouble • Servo adjustment defect on supply or take-up reel • Supply or take-up reel brake trouble • Supply reel brake solenoid drive circuit (SV-206 board) trouble • Harness disconnection • Reel table height adjustment defect • Tape path and drum troubles • Tape abnormality (The winding state has a problem.)
Protecting operation:	Stops the tape transport and enters the rest state.

ERROR-06 TAPE TENSION ERROR
(TAPE TENSION)

Description:	Excessive tension was detected in the REC or PLAY mode.
Detecting condition:	When the tension value calculated from supply tension sensor output is more than 55 g continuously for more than three seconds.
Sub error message:	None
Possible causes:	• Cassette compartment trouble or installation defect * The reel did not rotate because the cassette was lifted-up from the specified position. • Supply tension sensor or its related circuit (SV-206 board) trouble • Supply reel motor trouble • Supply reel motor drive circuit (SV-206 board) trouble • Servo adjustment defect on supply reel and supply tension sensor • Supply reel brake trouble • Supply reel brake solenoid drive circuit (SV-206 board) trouble • Harness disconnection
Protecting operation:	Stops the tape transport and enters the rest state.

ERROR-07 CAPSTAN TROUBLE (CAPSTAN TROUBLE)

Description:	Abnormal capstan motor rotation speed was detected in the REC, PLAY, SEARCH, or REW mode. Malfunction of capstan FG was detected in the REC or PLAY mode.
Detecting conditions:	1) When the capstan motor rotation speed is under a half of the specified speed continuously for more than four seconds in the SEARCH or REW mode. 2) When the frequency calculated from the capstan FG is out of the specification in the REC or PLAY mode.
Sub error message:	None
Possible causes:	• Capstan motor trouble • FG sensor trouble in capstan motor • Capstan motor drive circuit (SV-206 board) trouble • Capstan motor FG waveform shaper circuit (SV-206 board) trouble • Capstan FG duty adjustment defect
Protecting operations:	Stops the tape transport and enters the rest state.

ERROR-08 DRUM TROUBLE (DRUM TROUBLE)

Description:	Malfunction of drum motor was detected.
Detecting condition:	1) When the drum FG is not detected for more than 0.2 second. 2) When the drum rotation speed is over 90 rotations per second, and this condition continues and accumulates about three seconds within ten seconds. 3) When the drum rotation speed is under the specified.
Sub error message:	None
Possible causes:	• Drum motor trouble • Drum microcomputer (IC210 on SV-206 board) trouble • Drum motor drive circuit (SV-206 board) trouble • Drum FG/PG waveform shaper circuit (SV-206 board) trouble • Assembly defect during upper drum replacement
Protecting operation:	Stops the tape transport and enters the rest state.

ERROR-09 FUNC. CAM MOTOR TIMEOUT (FUNC. CAM MOTOR)

Description:	Malfunction of threading or unthreading operation was detected.
Detecting conditions:	1) When the status of the function cam sensors does not change more than four seconds in other state of threading end or unthreading end. 2) When the mode shift of the function cam sensors are abnormal state.
Sub error message:	None
Possible causes:	• Threading motor trouble • Threading motor drive circuit (SV-206 board) trouble • Threading mechanism trouble • Function cam sensor trouble
Protecting operations:	Enters the protection mode during tape threading/unthreading. Stops the tape transport and enters the rest state in cases except the above.

ERROR-10 HUMID (HUMID)

Description:	Dew condensation was detected.
Detecting condition:	When the condensation sensor detects dew condensation continuously for about two seconds.
Sub error message:	None
Possible causes:	• Actual dew detection (When the operating environment rapidly changes from low temperatures to high temperatures and high humidity) • Condensation sensor trouble • Dew input port (IC402 on SV-206 board) trouble
Protecting operations:	Stops the drum rotation or prohibits the rotation of drum. Prohibits the cleaning roller operation. Stops the tape transport and enters the rest state in the unthread end state when the tape is threaded in state other than PLAY and REC mode. Prohibits the tape threading.

Note

When this sensor detects dew condensation once, the error message will be displayed for about 40 minutes even if a dry state is detected later.

ERROR-12 TAPE TOP SENSOR TROUBLE
(TAPE TOP SENSOR)

Description:	Malfunction of tape top sensor was detected.
Detecting condition:	When the tape top is detected continuously for more than seven seconds.
Sub error message:	None
Possible causes:	• Tape top sensor trouble • Tape top detection circuit (SV-206 board) trouble • Tape top input port (IC113 on SV-206 board) trouble • Harness disconnection • The tape cannot move at the tape top due to troubles other than the tape sensor.
Protecting operations:	Stops the tape transport and enters the rest state during tape transport.

ERROR-13 TAPE END SENSOR TROUBLE
(TAPE END SENSOR)

Description:	Malfunction of tape end sensor was detected.
Detecting condition:	When the tape end is detected continuously for more than seven seconds.
Sub error message:	None
Possible causes:	• Tape end sensor trouble • Tape end detection circuit (SV-206 board) trouble • Tape end input port (IC113 on SV-206 board) trouble • Harness disconnection • The tape cannot move at the tape end due to troubles other than the tape sensor.
Protecting operations:	Stops the tape transport and enters the rest state during tape transport.

ERROR-14 FAN MOTOR TROUBLE
(FAN MOTOR)

Description: Malfunction of cooling fan motor was detected.

CAUTION

If this error occurred, stop immediately operation of the unit, and turn off the power.

If the unit uses continuously under the fan is stopped state, overheating inside the unit can cause a fire or a failure.

Detecting condition: When the fan motor FG frequency is less than 60% of the specified value.

Sub error message: None

Possible causes:

- Fan motor trouble
- Fan motor FG input port (SY-272 board) trouble
- Harness disconnection

Protecting operation: None

ERROR-15 FULL TOP SENSOR TROUBLE
(FULL TOP SENSOR)

Description: Malfunction of tape full top sensor was detected.

Detecting condition: When the tape full top is detected continuously for more than four seconds.

Sub error message: None

Possible causes:

- Tape full top sensor trouble
- Tape full top detection circuit (SV-206 board) trouble
- Tape full top input port (IC113 on SV-206 board) trouble
- Harness disconnection
- The tape cannot move at the tape full top or tape full end due to troubles other than the tape sensor.

Protecting operations: Stops the tape transport and enters the rest state during tape transport.

ERROR-92 INTERNAL INTERFACE ERROR 1 (INTERNAL I/F 1)

Description: Abnormality was detected in the communication between SYS CPU (IC108 on SY-272 board) and other CPU/MPU.

Sub error messages and Detecting conditions:

KY: When the communication with KY-446 board's MPU (IC105) is in abnormal state.

DP: When the communication with DP-264 board's MPU (IC101) is in abnormal state.

Possible causes:

KY:

- Cable (between CN-1779 board and KY-446 board) connection defect or disconnection
- Cable (between MB-838 board and CN-1779 board) connection defect or disconnection
- Interface circuit (IC208 on SY-272 board) trouble
- Line receiver/transceiver (IC101 on KY-446 board) trouble
- KY-446 board's MPU (IC105) trouble

DP:

- Cable (between MB-838 board and KY-446 board) connection defect or disconnection
- MPU control interface circuit (IC300, IC302, and IC307 on SY-272 board) trouble
- KY-446 board's MPU (IC105) trouble

Protecting operation : None

ERROR-93 INITIALIZE ERROR (CPU INITIALIZE)

Description : Abnormality was detected in the communication between SERVO CPU (IC102 on SV-206 board) and DRUM MPU (IC210/SV-206 board).

Detecting condition : When the diagnostic of each IC at turning on the power or shifting the operation mode is in abnormal state.

Sub error message and Detecting condition :

DRUM : When the communication with DRUM MPU (IC210 on SV-206 board) is in abnormal state.

Possible causes :

- MPU control interface circuit (IC105 and 109 on SV-206 board) trouble.
- DRUM MPU (IC210 on SV-206 board) trouble.

Protecting operation : None

ERROR-96 SY NV-RAM ERROR (SY NV-RAM ERROR)

Description: The abnormal operation of an NV-RAM (IC120 on SY-272 board) for the system control system was detected.

Sub error messages and Detecting conditions:

CURRENT SETUP: When the data error occurs in the setup menu current memory area during the data write or read .

SETUP BANK1: When the data error occurs in the setup menu bank 1 memory area during the data write or read.

SETUP BANK2: When the data error occurs in the setup menu bank 2 memory area during the data write or read.

SETUP BANK3: When the data error occurs in the setup menu bank 3 memory area during the data write or read.

SETUP BANK4: When the data error occurs in the setup menu bank 4 memory area during the data write or read.

ID CODE: When the data error occurs in the ID code memory area during the data write or read.

CALENDAR CLOCK: When the calendar/clock function was stopped.

Possible causes:

- NV-RAM (IC120 on SY-272 board) trouble
- Address decoder (IC115 on SY-272 board) trouble
- Backup battery (BT101) inside NV-RAM is out of life

Protecting operations: When the error occurs in setting data of the setup menu, resets those data to the factory settings.

When the error occurs in ID data, resets the data to 00 00 00 00.

When the error occurs at the calendar/clock function, resets the date and time data to '97 09 01 00 00 00 (Year, Month, Day, Hour, Minute, Second).

ERROR-97 SV NV-RAM ERROR (SV NV-RAM)

Description: The abnormal operation of an NV-RAM (SV-206 board) for the servo system was detected.

Detecting condition: When the checksum of NV-RAM data does not coincide during activation.

Sub error message: None

Possible cause: NV-RAM (IC112 on SV-206 board) trouble

Protecting operation: Enters the protection mode

ERROR-98 RF NV-RAM ERROR
(RF NV-RAM ERROR)

Description: The abnormal operation of an NV-RAM (DM-121 board) for RF system was detected.

Sub error messages and Detecting conditions:

DM: When the error occurs in an NV-RAM (IC909 on DM-121 board) during the data write or read.

TBC: When the error occurs in an NV-RAM (IC1812 on DM-121 board) during the data write or read.

Possible causes: Trouble of an NV-RAM indicated by sub error message

Protecting operation: None

ERROR-99 INTERNAL INTERFACE ERROR 2
(INTERNAL I/F 2)

Description: Abnormality was detected in the communication between SYS CPU (IC108 on SY-272 board) and SERVO CPU (SV-206 board) or MPU (on DM-121 or SDI-23 board).

Sub error messages and Detecting conditions:

SV: When the SERVO CPU (IC102 on SV-206 board) initialization at power-on is in abnormal state.

DM: When the communication with DM-121 board's MPU (IC908) is in abnormal state.

TBC: When the communication with DM-121 board's MPU (IC1808) is in abnormal state.

SDI: When the communication with SDI-23 board's MPU (IC455) is in abnormal state.

Possible causes:

- SV:**
 - DIP switch (S100 on SV-206 board) setting defect
 - Common RAM (IC300 on SV-206 board) trouble
 - Servo system (on SV-206 board) trouble
- DM:**
 - MPU control interface circuit (IC301, 311, and 312 on SY-272 board) trouble
 - DM-121 board's MPU (IC908) trouble
- TBC:**
 - MPU control interface circuit (IC301, 311, and 312 on SY-272 board) trouble
 - DM-121 board's MPU (IC1808) trouble
- SDI:**
 - MPU control interface circuit (IC301, 311, and 312 on SY-272 board) trouble
 - SDI-23 board's MPU (IC455) trouble

Protecting operations: When the sub error message is “**SV**”, enters the protection mode.
When it is except above, displays only this error.

Section 3

Maintenance Mode

3-1. Overview of Maintenance Mode

This unit has the maintenance mode that is useful during maintenance and trouble diagnosis.

This maintenance mode consists of the four modes below. The contents of the maintenance mode are superimposed on the LCD monitor and the video monitor connected to the VIDEO OUTPUT 2 (SUPER) connector.

To superimpose the contents of the maintenance mode, set the SUPER item on the general setting page of the sub LCD menu to ON. (For the sub LCD menu, refer to the operation manual.)

M0 : TAPE MAINTENANCE (Section 3-2)

This mode is used for maintenance of a VTR part.

In this manual, explains tape maintenance items for operation check only.

For adjustment and others, refer to the maintenance manual part 2 volume 1.

```
MAINTENANCE MODE

*M0 : TAPE MAINTENANCE
M2 : ERROR LOGGER
M3 : OTHERS
M4 : SETUP MAINTENANCE
```

(Mode screen during activation of maintenance mode)

Note

The typeface of characters displayed on the video monitor differs from the actual one.

```
TAPE MAINTENANCE MODE

*C0 : SERVO CHECK
C2 : AUDIO/VIDEO CHECK
A0 : SERVO ADJUST
A1 : BETACAM REC ADJUST
A2 : AUDIO/VIDEO ADJUST
A3 : BETACAM PB ADJUST
A4 : MECHANISM ADJUST
```

M2 : ERROR LOGGER (Section 3-3)

This mode is used to display the record of errors (error logging) that occur in this unit.

```
ERROR LOGGER
(001/003)
*001 REEL TROUBLE-1
002 TAPE TENSION ERROR
003 INTERNAL I/F ERROR
-----
TAPE ERROR ON
WARNING ON
CONDITION ON

' 97 09 03 09:23:00
```

Note

The display on the left is one of the displayed examples.

M3 : OTHERS (Section 3-4)

This mode is used for checking the others.

```
M3:OTHERS

*M30:ROM VERSION
M31:SERIAL NUMBER
M35:MEMORY CHECK
M36:HOURLY METER RESET
M3F:MEMORY CARD UTILITY
```

M4 : SETUP MAINTENANCE (Section 3-5)

This mode is used for the setup menu.

```
SETUP MAINTENANCE MODE

*M40 : EXTENDED MENU
M49 : RESET ALL SETUP
```

Buttons and Switches for Operation

The main buttons and switches related to the operation of maintenance mode are as follows: The ordinary functions of these buttons and switches and how to use them are described below.

① Message display area on sub LCD

The sub LCD displays the menu (mode) No., menu title, selection item, status, or data. The menu (mode) No. or selection item block blinks while the menu (mode) or selection item is specified (not including the servo menu in the TAPE maintenance mode). For manual adjustment, the data block blinks. In the state where the tape operation (PB, REC, F FWD, and REW) can be performed, the sub LCD functions as an ordinary time counter.

There is a menu (mode) that contains insufficient information displayed in the message display area of sub LCD. Since the information displayed on the LCD monitor is easier to operate and check, usually use a LCD monitor.

② MENU button

Press this button in the maintenance mode to return to the screen (state) preceding by one step. The maintenance mode is terminated if this button is pushed when the mode screen is displayed (mode No. M0, M2 or M4 blinks in a message display area of sub LCD).

③ SET button

Press this button in the maintenance mode to select or execute the menu (mode) selected using a ⑦ JOG dial.

The maintenance mode can be activated when this SET button is pressed while pressing the ④ CTL/TC/U-BIT button in the setup menu mode with ⑨ DIP switch S202-2 on the SY-272 board set to ON (upper).

④ CTL/TC/U-BIT button

The maintenance mode can be activated when the ③ SET button is pressed while pressing this button in the setup menu mode with ⑨ DIP switch S202-2 on the SY-272 board set to ON (upper).

⑤ RESET button

Press this button in the error logger mode to erase the recorded error log.

⑥ Search button

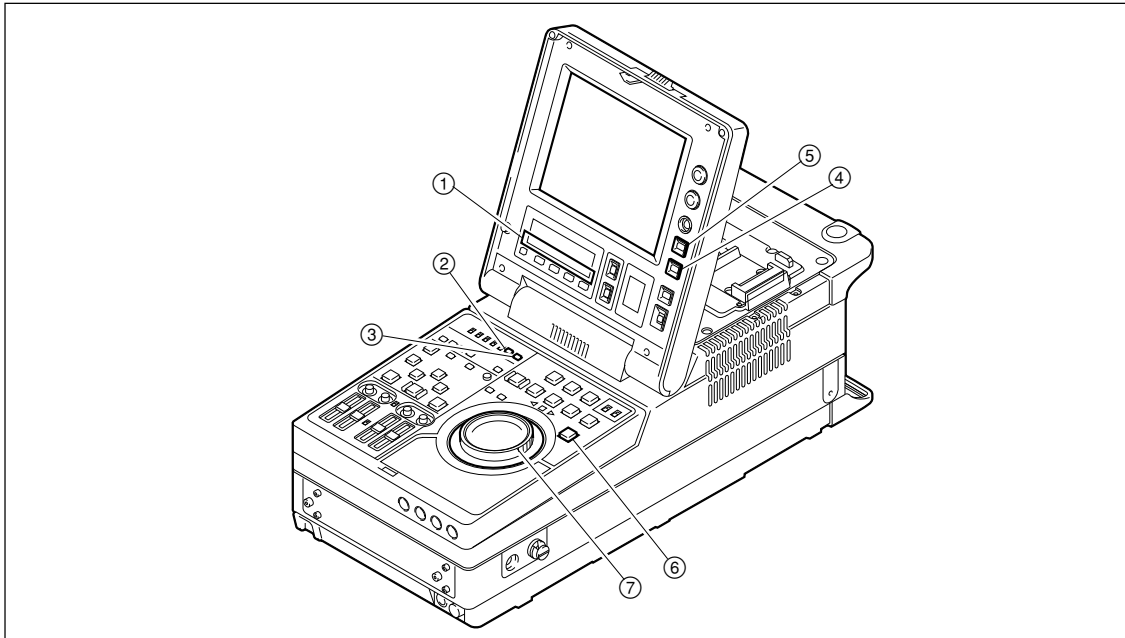
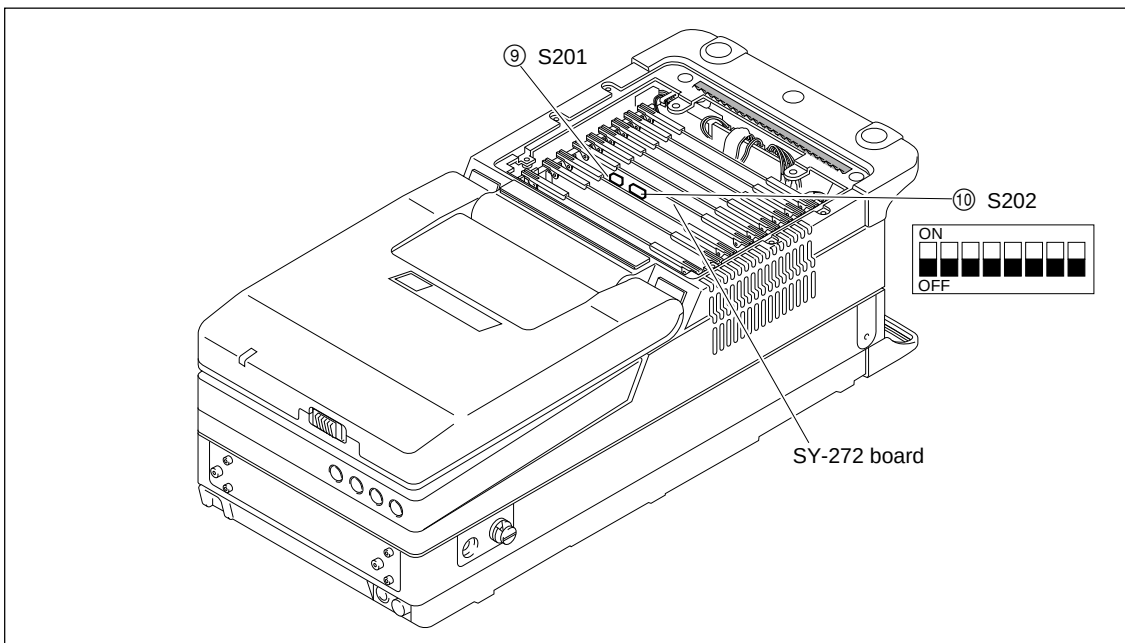
The data value or setting can be changed when the ⑦ JOG/shuttle dial is turned while pressing this button.

⑦ JOG shuttle dial

Turn the JOG dial or shuttle dial (depend on search mode) to specify the menu (mode) or selection item. An “*” mark moves on the LCD monitor. In a sub LCD, the display is replaced and the specified item blinks. (“JOG DIAL” is displayed on the LCD monitor.)

The data value or setting can be changed when the JOG dial or shuttle dial (depend on search mode) is turned while pressing the ⑥ search button.

- ⑧ S201/SY-272 board: Maintenance mode start switch (MAINTE MODE START)
Press this switch to activate the maintenance mode.
- ⑨ S202-2/SY-272 board: Maintenance mode access permission switch (MAINTE MODE Access)
Set this switch to ON in advance when activating the maintenance mode by the button operation on the control panel.

**Lower Control Panel****Location of Switches on SY-272 Board****Note**

Remove the battery sub panel referring to Section 1-6-1 when operating the switches on the SY-272 board. Change the setting of DIP switch S202 with the power switch set to OFF.

Activating the Maintenance Mode

- (1) Press the ⑧ S201 switch (on the SY-272 board).
- (2) The mode screen in the maintenance mode is superimposed on the LCD monitor.
In a ① sub LCD, "M0-TAPE MAINTEN" is displayed.

```

  MAINTENANCE MODE
*M0 : TAPE MAINTENANCE
M2 : ERROR LOGGER
M3 : OTHERS
M4 : SETUP MAINTENANCE

```

LCD Monitor

```

M0 - TAPE MAINTEN

```

Sub LCD

Activating the Maintenance Mode from Control Panel

The maintenance mode can be activated by the operation below when ⑨S202-2 switch (on the SY-272 board) is set to ON (upper).

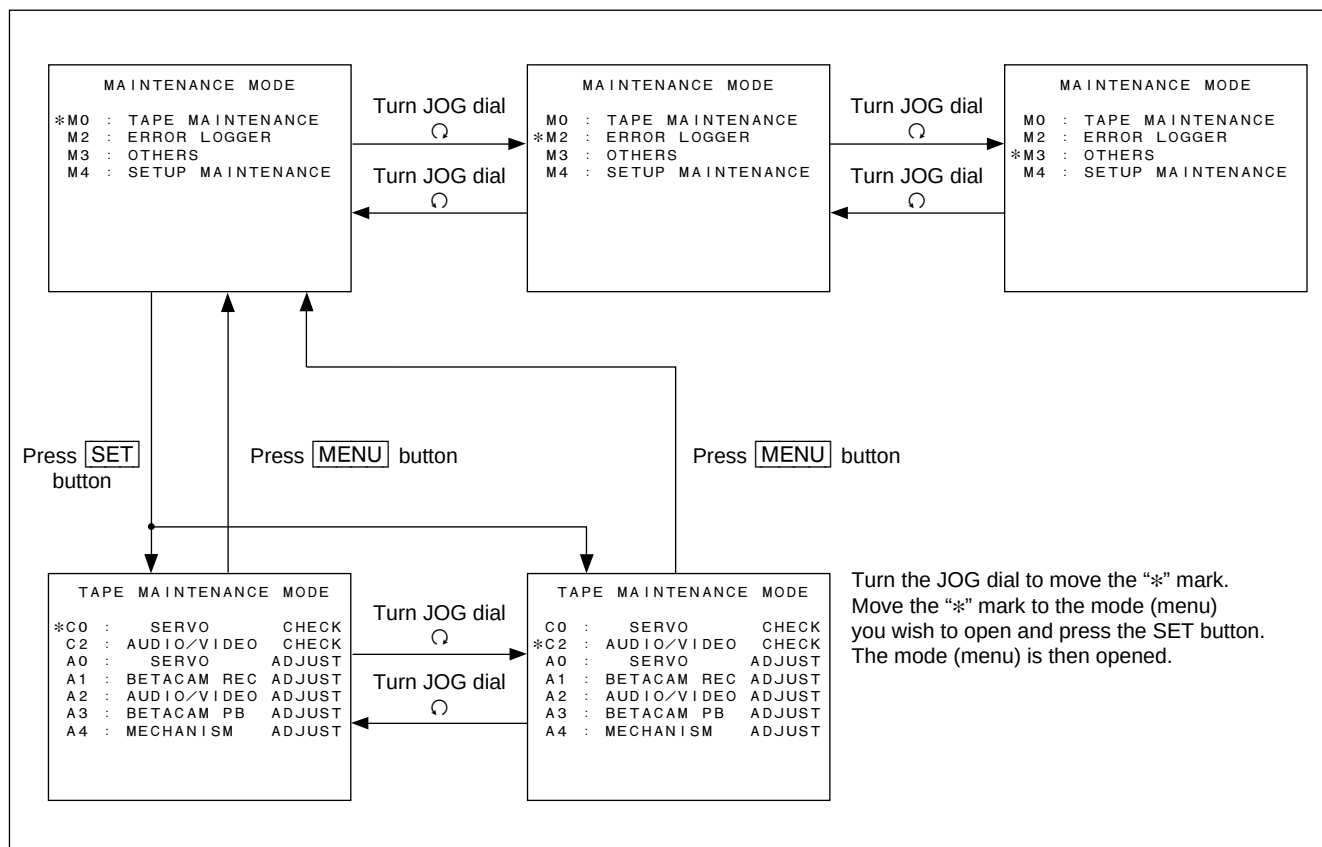
- (1) Press the ② MENU button once.
(Execute the setup menu mode from the operation mode.)
- (2) Press the ③ SET button while pressing the ④ CTL/TC/U-BIT button.
(Execute the maintenance mode from the setup menu mode.)
- (3) The mode screen in the maintenance mode is displayed on the LCD monitor.

Terminating the Maintenance Mode

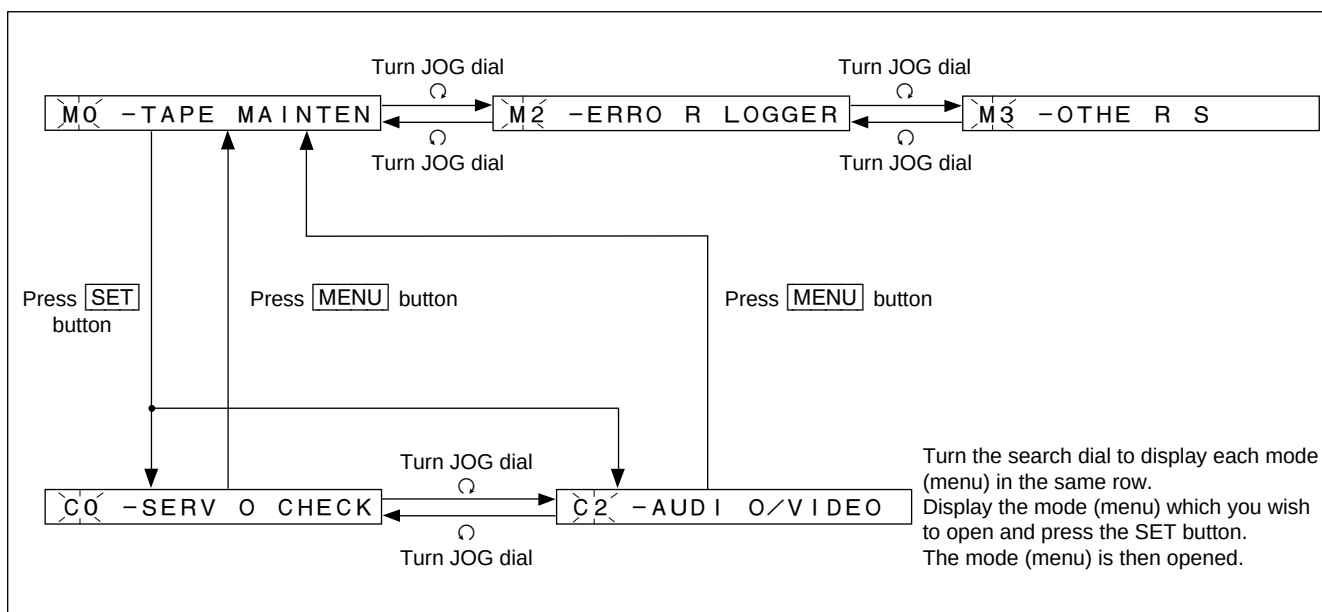
- (1) Press the ② MENU button several times to display the mode screen on the LCD monitor.
The selected mode No. and title are displayed in a sub LCD.
- (2) Press the ② MENU button again to terminate the maintenance mode.

Specifying the Menu (Mode) and Item

How to specify the menu (mode) and item using the JOG dial (JOG mode) is described below with the mode selection given as an example.



Example in Superimpose Picture



Example in sub LCD

3-2. TAPE Maintenance Mode (M0)

3-2-1. Overviews

The TAPE maintenance mode is used for the check and maintenance.
This unit has the seven submodes below.

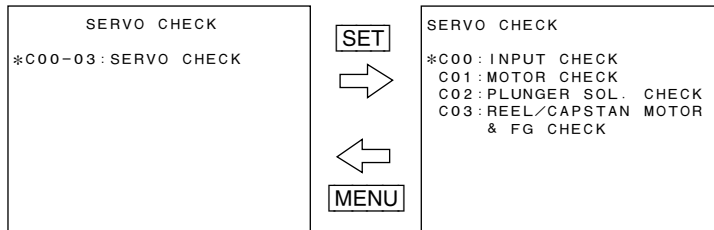
TAPE MAINTENANCE MODE		
*C0	: SERVO	CHECK
C2	: AUDIO/VIDEO	CHECK
A0	: SERVO	ADJUST
A1	: BETACAM REC	ADJUST
A2	: AUDIO/VIDEO	ADJUST
A3	: BETACAM PB	ADJUST
A4	: MECHANISM	ADJUST

TAPE Maintenance Mode

C0: SERVO CHECK

This submode is used to check the servo system.

For more details, refer to Section 3-2-2.

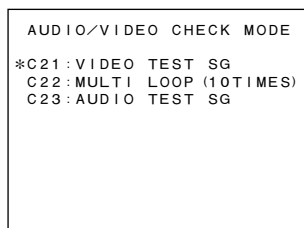


Title	Page	Description
C00 : INPUT CHECK	—	Check menu of sensors (not including a part of sensors)
C000 : CASSETTE SW	3-11	Checks the cassette tab and REC inhibit sensors.
C001 : CASSETTE COMP. LOCK SW	3-12	Checks the cassette-in and cassette size sensors.
C002 : TOP/END SENSOR	3-13	Checks the tape top and tape end sensors.
C003 : DEW SENSOR	3-14	Checks the dew condensation sensors.
C01 : MOTOR CHECK	—	Check menu of motors (except a fan motor) and partial sensors
C010 : S REEL MOTOR	3-15	Checks the S reel motor.
C011 : FUNCTION CAM MOTOR	3-16	Checks the threading motor and threading/unthreading end sensors.
C012 : CAPSTAN MOTOR	3-18	Automatically checks the capstan motor.
C013 : DRUM MOTOR	3-19	Automatically checks the drum motor.
C02 : PLUNGER SOL. CHECK	—	Check menu of solenoids
C020 : S REEL BRAKE	3-20	Checks the S reel brake solenoid.
C03 : REEL/CAPSTAN MOTOR & FG CHECK	3-21	Continuous check menu of reel and capstan motors

C2 : AUDIO/VIDEO CHECK

This submode is used to check the audio and video systems.

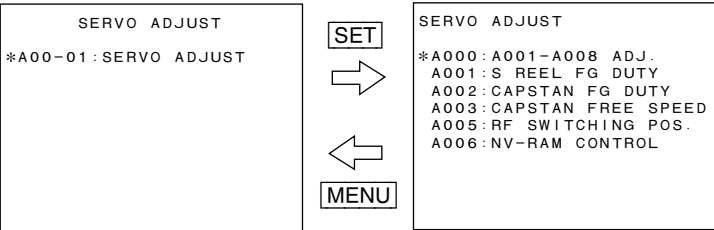
For more details, refer to Section 3-2-3.



Title	Page	Description
C21 : VIDEO TEST SG	3-22	Sets the video test signal generator incorporated into this unit.
C22 : MULTI LOOP (10 TIMES)	3-23	Sets the multi-loop function in the maintenance mode.
C23 : AUDIO TEST SG	3-23	Sets the audio test signal generator incorporated into this unit.

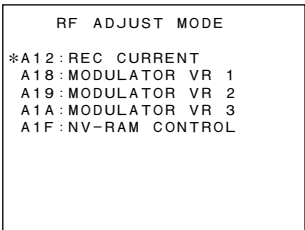
A0 : SERVO ADJUST

This submode is used to adjust the servo system.
For more details, refer to the maintenance manual part 2 volume 1.



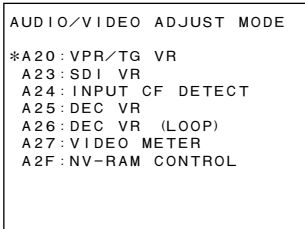
A1 : BETACAM REC ADJUST

This submode is used to adjust the RF system.
For more details, refer to the maintenance manual part 2 volume 1.



A2 : AUDIO/VIDEO ADJUST

This submode is used to adjust the audio and video systems.
For more details, refer to the maintenance manual part 2 volume 1.



A3 : BETACAM PB ADJUST

This submode is used to adjust the video PB system.

For more details, refer to the maintenance manual part 2 volume 1.

```
BETACAM PB ADJUST MODE
* A32 : DM VR 1
A33 : DM VR 2
A34 : DM VR 3
A35 : DM VR 4
A36 : DM VR 5
A37 : TBC VR 1
A38 : TBC VR 2
A3F : NV-RAM CONTROL
```

A4 : MECHANISM ADJUST

This submode is used to adjust the mechanism part.

For more details, refer to the maintenance manual part 2 volume 1.

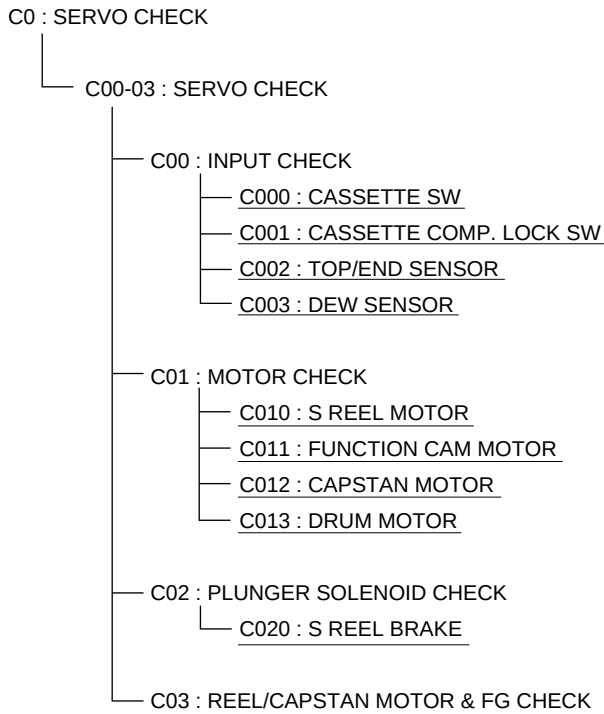
```
MECHANISM ADJUST
* A40 : PATH MODE SEL
```

3-2-2. SERVO CHECK Mode (C0)

The C0: SERVO CHECK mode is used to check the servo system. The underlined menus and submenus in the menu tree below are described next.

Note

In the servo check mode, only the menu number is displayed in a sub LCD. (C00-03 is displayed as “C00”.)



Menu Tree of Servo System Check Mode

Note

A cassette tape is automatically ejected if it has been inserted into this unit when the C00-03 : SERVO CHECK screen is shifted to the lower-level menu.

C000 : CASSETTE SW

This submenu checks the functions of cassette tab sensors and REC inhibit sensors (switches).

- (1) Press each sensor (switch) with fingers.
 - Confirm that “0” below the corresponding switch number changes to “1”.
- (2) Release the fingers.
 - Confirm that “1” below the corresponding switch number returns to “0”.
- (3) Press the MENU button when terminating the check.

In case of NG

When cassette tab sensors (① to ⑥) are NG

- Check the corresponding sensor (S400 to S405) on the SV-206 board.
- Check the sensor input port of MPU (IC402 on the SV-206 board).

When REC inhibit sensor (METAL tape) ⑦ is NG

- Check the sensor (S406) on the SV-206 board.
- Check the sensor input port of MPU (IC402 on the SV-206 board).

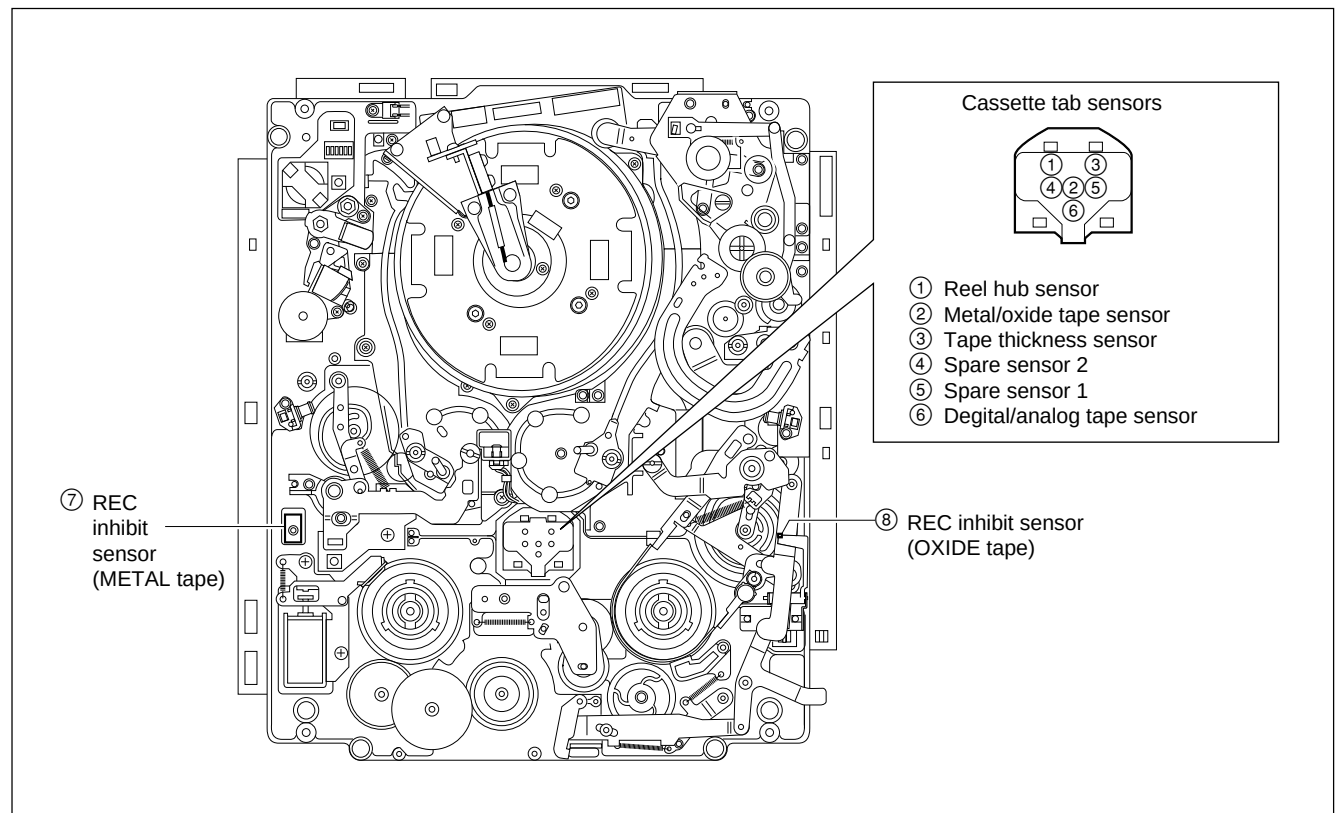
When REC inhibit sensor (OXIDE tape) ⑧ is NG

- Check the sensor (PH400) on the SV-206 board.
- Check the sensor input port of MPU (IC402 on the SV-206 board).

INPUT CHECK										
C000: CASSETTE SW										
1: REEL HUB		2: METAL/OX								
3: THICKNESS		4: SPARE								
5: SPARE		6: DGTL/ANLGL								
7: METAL REC		INHIBIT								
8: OXIDE REC		INHIBIT								
							7	1	3	8
SW 87654321							425			
00000000							6			

(Ex.: When pressing the switch ⑦)

INPUT CHECK			
C000: CASSETTE SW			
1: REEL HUB	2: METAL/OX		
3: THICKNESS	4: SPARE		
5: SPARE	6: DGLT/ANLGL		
7: METAL REC	INHIBIT		
8: OXIDE REC	INHIBIT		
		7	1 3 8
SW 87654321		425	
00000000		6	



Locations of Sensors (Switches)

C001 : CASSETTE COMP. LOCK SW

This submenu checks the locking switch function of a compartment.

- (1) Press down the cassette compartment.
 - Confirm that the message on the LCD monitor from “OFF” to “ON!”.
- (2) Press the MENU button when terminating the check.

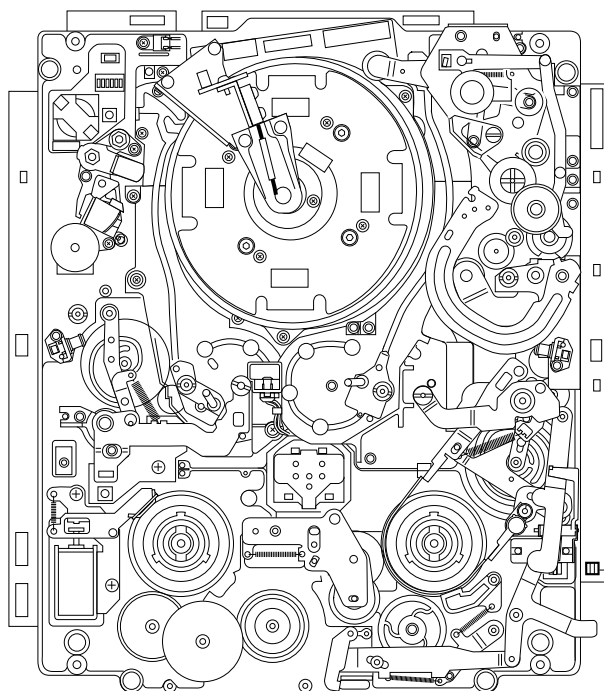
In case of NG

- Check the cassette compartment down sensor on the SV-206 board.
- Check the sensor input port of MPU (IC305 on the SV-206 board).

```
INPUT CHECK
C001 : CASSETTE COMP. SW
OFF
```



```
INPUT CHECK
C001 : CASSETTE COMP. SW
ON !
```



Cassette compartment down sensor

Cassette compartment down sensor

C002 : TOP/END SENSOR

This submenu checks the functions of a tape top sensor, tape end sensor and full top sensor.

- (1) Bring a metallic screwdriver near each sensor.
 - Confirm that the characters below the corresponding sensor change from “OFF” to “ON!”.

CAUTION

Never bring the screwdriver into contact with each sensor.

- (2) Keep the screwdriver away from each sensor.
 - Confirm that the characters below the corresponding sensor return from “ON!” to “OFF”.
- (3) Press the MENU button when terminating the check.

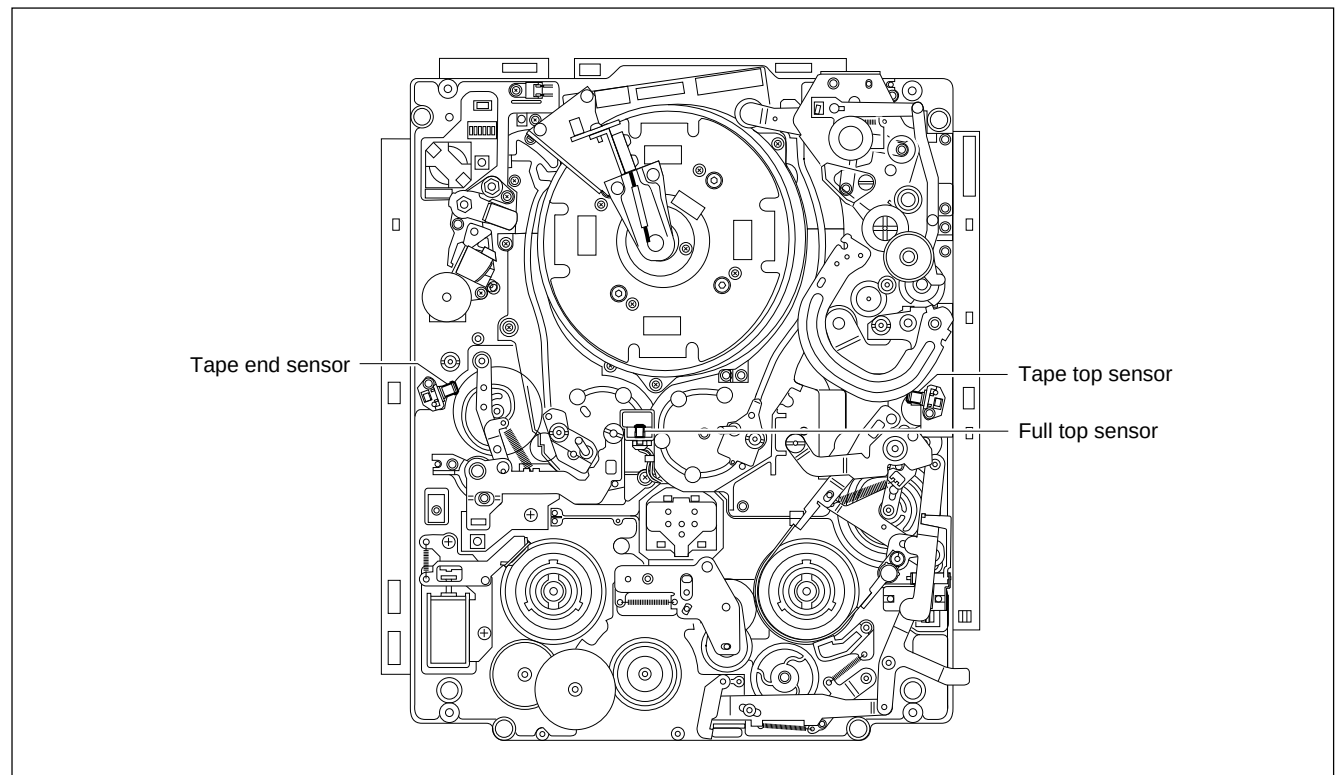
In case of NG

- Check each sensor itself.
- Check the oscillator and detection circuit (IC407 on the SV-206 board) for sensors.
- Check the sensor input port of MPU (IC113 on the SV-206 board).

INPUT CHECK			
C002 : TOP/END SENSOR			
END SENSOR	FULL SENSOR	TOP SENSOR	TOP SENSOR
OFF	OFF	OFF	OFF

(Ex.)

INPUT CHECK			
C002 : TOP/END SENSOR			
END SENSOR	FULL SENSOR	TOP SENSOR	TOP SENSOR
OFF	OFF	ON !	ON !



Locations of Tape Top and Tape End Sensors

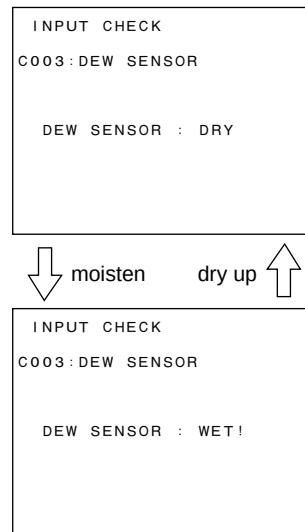
C003 : DEW SENSOR

This submenu checks the function of a dew condensation sensor.

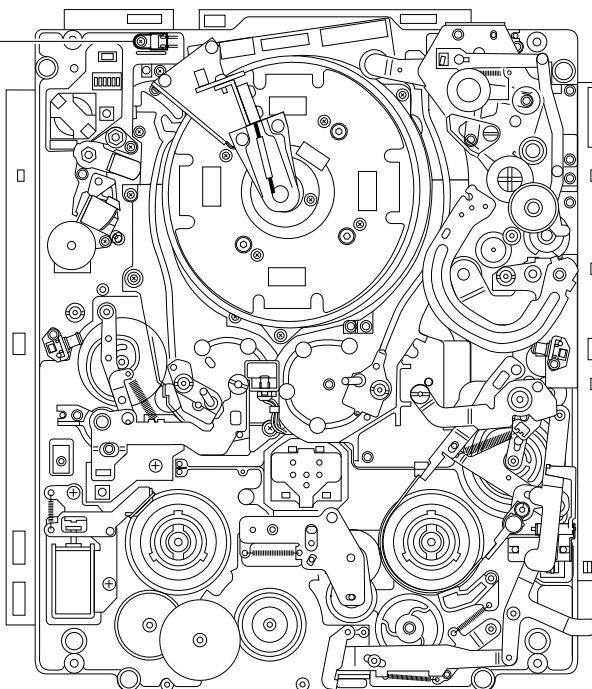
- (1) Slightly touch the sensor with the cotton swab moistened with water.
 - Confirm that the “DRY” characters change to “WET!”.
- (2) Wipe the sensor with a dry cotton swab to eliminate the moisture or evaporate moisture completely using a blower.
 - Confirm that the “WET!” characters return to “DRY”.
- (3) Press the MENU button when terminating the check.

In case of NG

- Check the sensor itself.
- Check the detection circuit (on the SV-206 board).
- Check the sensor input port of MPU (IC402 on the SV-206 board).



Dew condensation sensor



Location of Dew Condensation Sensor

C010 : S REEL MOTOR

This menu checks the function of an S reel motor.

- (1) Turn the JOG dial (JOG mode) in FORWARD (↻) or REVERSE (↻) direction.
Confirm that the reel table rotates in the specified direction at a fixed speed
(about one turn per second) after the reel brake is released.

JOG dial	Rotation direction of reel table
FORWARD (↻)	Clockwise (↻)
REVERSE (↻)	Counterclockwise (↻)

- (2) Stop the rotation of the JOG dial and confirm that the reel table stops and that
the reel brake operates.
- (3) Press the MENU button when terminating the check.

In case of NG

When the reel table operation is defective

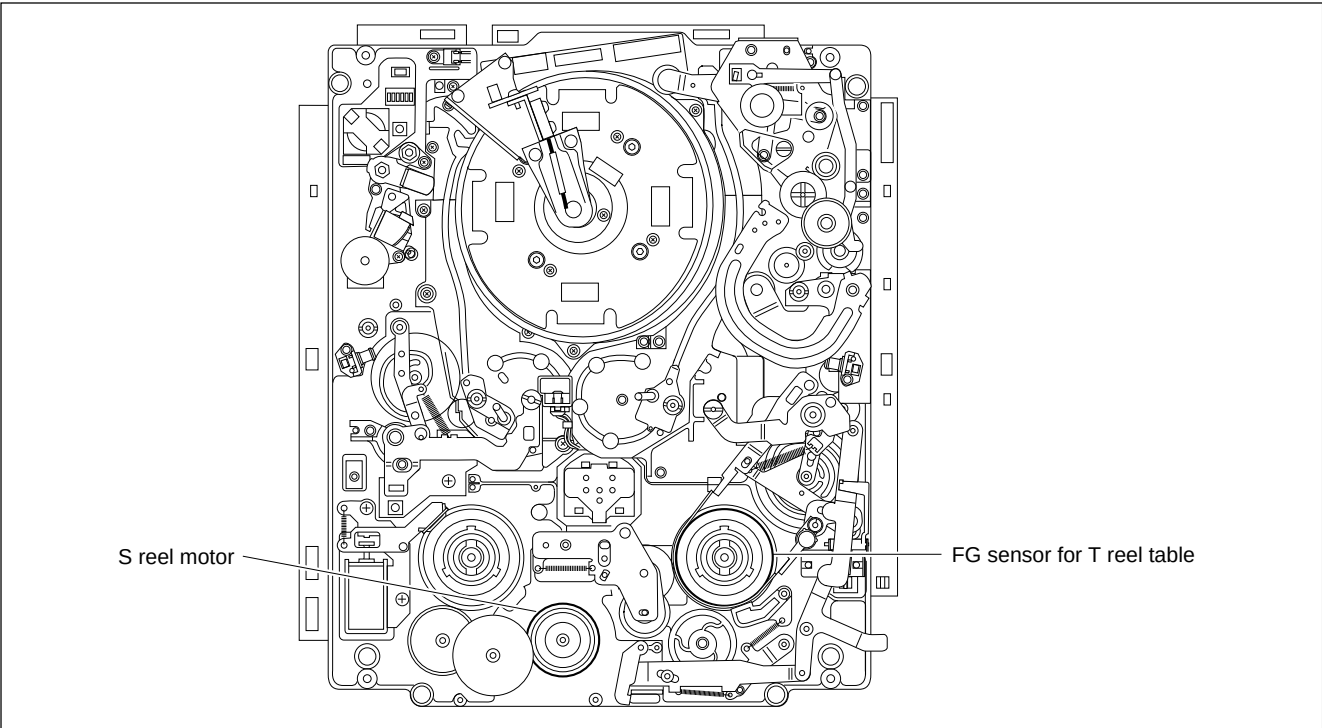
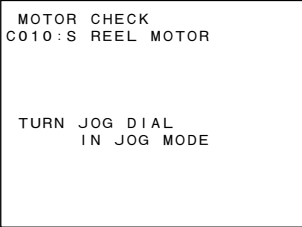
- Check the S reel motor drive circuit (on the SV-206 board).
- Check the S reel motor.

When the reel table is not constant at a rotation speed

- Adjust the duty ratio of an S reel FG. (A001)
- Check the FG output from a T reel table FG sensor (on the SV-206 board).
- Check the FG output from a S reel motor.
- Check the reel FG shaping circuit (on the SV-206 board).

When the brake solenoid operation is defective

- Check the S brake solenoid. (C021)



Locations of Reel Table FG Sensors

C011 : FUNCTION CAM MOTOR

This menu checks the functions of a function cam.

- (1) Slowly turn the JOG dial (JOG mode) in FORWARD (↻) direction.
- Confirm that the threading motor rotates and that the threading link moves threading direction and stops in the threading end state.
 - Confirm that the LCD monitor changes as described below.
(Check that the function cam code changes following the table in next page.)
- | | | | |
|----------------|---------|-------------|------------|
| UNTHREAD END ⇒ | ⇒ | (omitted) ⇒ | THREAD END |
| 1100 | 1100 | | 0110 |

Note

The threading motor also stops when the rotation of the JOG dial stops.

- (2) Slowly turn the JOG dial (JOG mode) in REVERSE (↻) direction.
- Confirm that the threading motor rotates and that the threading link moves unthreading direction and stops in the unthreading end state.
 - Confirm that the LCD monitor changes as described below.
(Check that the function cam code changes following the table in next page.)
- | | | | |
|--------------|---------|-------------|--------------|
| THREAD END ⇒ | ⇒ | (omitted) ⇒ | UNTHREAD END |
| 0110 | 0100 | | 1110 |

Note

The function cam also stops when the rotation of the JOG dial stops.

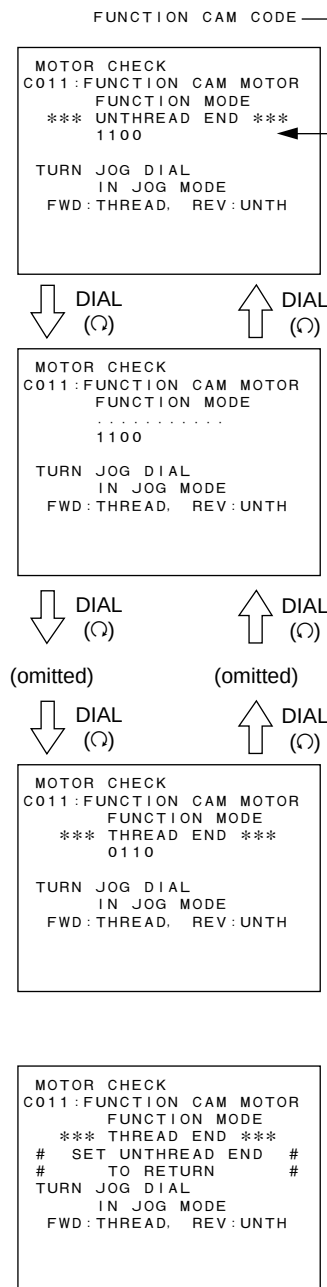
- (3) To terminate the check, return to the unthreading end state and push the MENU button.

Note

Message “SET UNTHREAD END TO RETURN” is displayed if the threading ring is not in the unthreading end state when the MENU button is pushed.

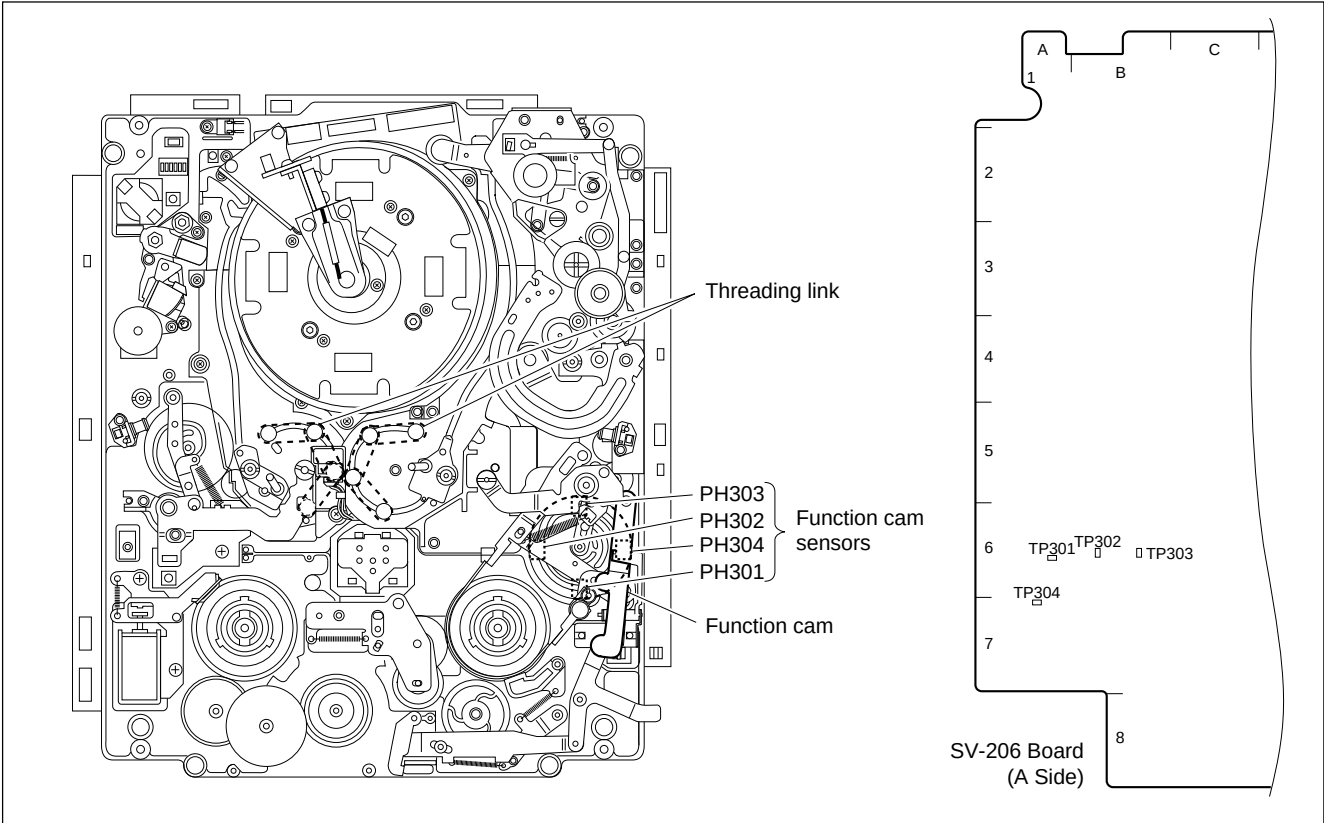
In case of NG

- Confirm that no mechanical abnormality exists.
- Check the function cam sensor (on the SV-206 board).
- Check the function cam sensor circuit (on the SV-206 board).
- Check the function cam motor drive circuit (on the SV-206 board).
- Check the function cam motor.



Code transition of the function cam

State of sensors (on the SV-206 board)				Condition of this unit
PH304 (TP304)	PH303 (TP303)	PH302 (TP302)	PH301 (TP301)	
1	1	1	0	UNTHREAD END
1	1	0	0	THREADING
1	1	0	1	
1	0	0	1	
1	0	0	0	
1	0	1	0	
1	0	1	1	
0	0	1	1	
0	0	1	0	
0	0	0	0	
0	0	0	1	
0	1	0	1	UNTHREADING
0	1	0	0	
0	1	1	0	THREAD END



Locations of Threading End and Unthreading End Sensors

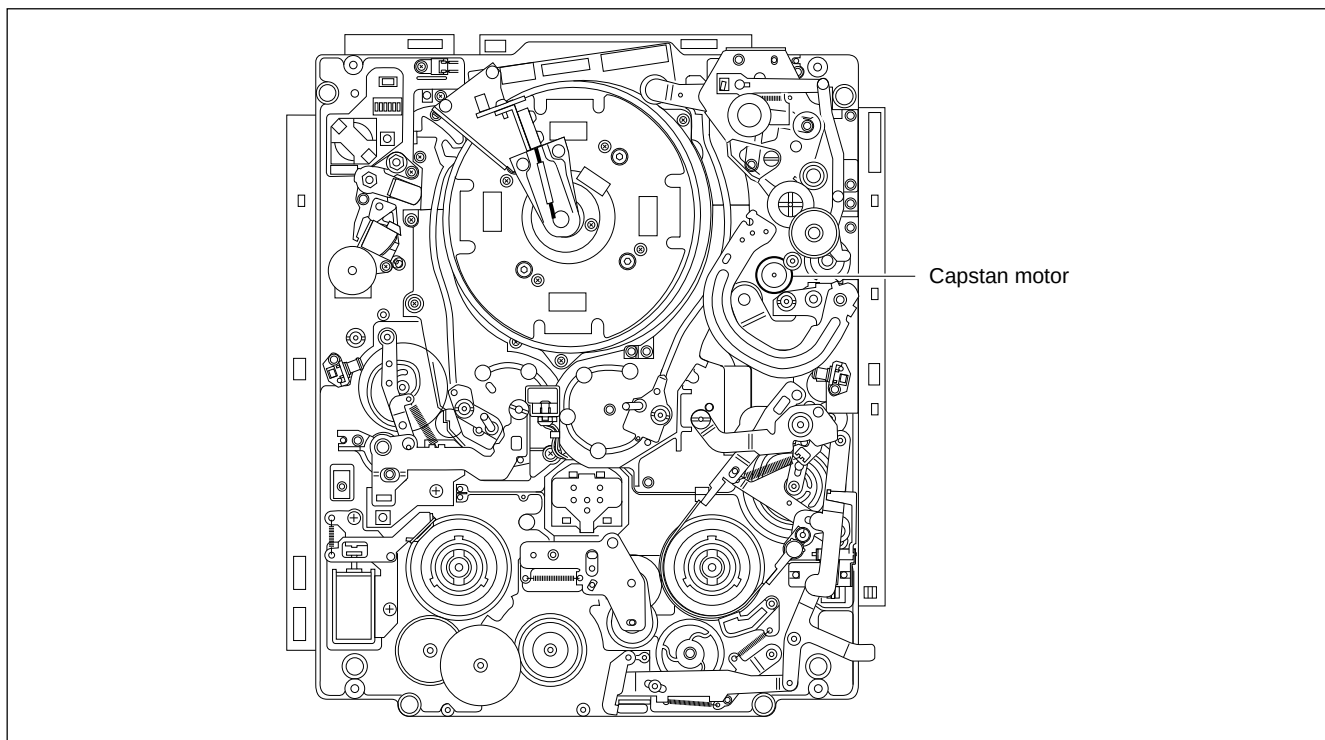
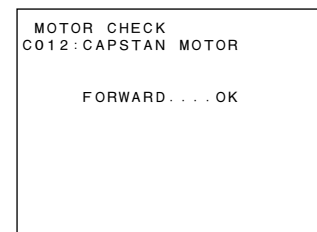
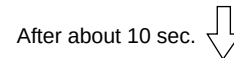
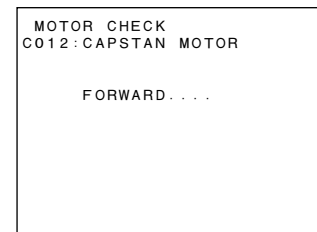
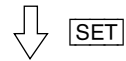
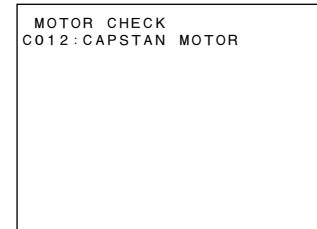
C012 : CAPSTAN MOTOR

This menu checks the function of a capstan motor.

- (1) Press the SET button.
 - Confirm that the capstan shaft rotates in the forward (↻) direction.
 - Confirm that message “FORWARD....OK” is displayed on the LCD monitor and that the capstan shaft stops.
- (2) Press the SET button again.
 - Confirm that the capstan shaft rotates in the reverse (↻) direction.
 - Confirm that message “REVERSE....OK” is displayed on the LCD monitor and that the capstan shaft stops.
- (3) Press the MENU button when terminating the check.

In case of NG

- Confirm that no mechanical abnormality exists.
- Check the capstan motor drive circuit (on the SV-206 board).
- Check the FG output from a capstan motor.
- Check the capstan FG shaping circuit (on the SV-206 board).
- Check each circuit that processes the capstan FG on the SV-206 board.
- Check the capstan motor.



Location of Capstan Shaft

C013 : DRUM MOTOR

This menu checks the function of a drum motor.

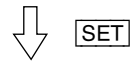
- (1) Press the SET button.
 - Confirm that the drum rotates.
 - Confirm that the LCD monitor changes as shown on the right.
- (2) Press the MENU button when terminating the check.
 - Confirm that the drum stops.

In case of NG

- Confirm that no mechanical abnormality exists.
- Check the drum motor drive circuit (on the SV-206 board).
- Check the FG and PG outputs from a drum motor.
- Check each circuit that processes the drum FG/PG on the SV-206 board.

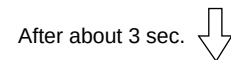
MOTOR CHECK
C013: DRUM MOTOR

SPEED :
PHASE :
PG :



MOTOR CHECK
C013: DRUM MOTOR

SPEED : NG
PHASE : UNLOCK
PG : NO EXIST



MOTOR CHECK
C013: DRUM MOTOR

SPEED : OK
PHASE : LOCK
PG : EXIST

C020 : S REEL BRAKE

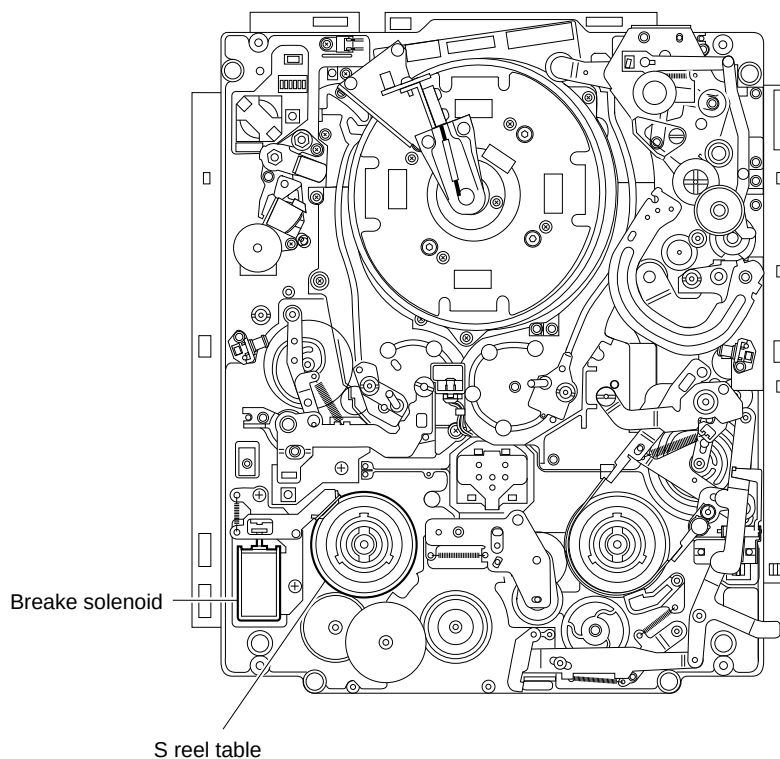
This menu checks the function of an S reel brake solenoid.

- (1) Press the SET button.
 - Confirm with sound that the reel brake solenoid is turned on. (The reel table can be lightly turned with hand because the brake is in the OFF state.)
- (2) Press the MENU button.
 - The check menu is terminated.
 - Check that the brake is applied to the reel table against the rotation of clockwise that the reel brake solenoid was turned off.

PLUNGER SOLENOID
C020 : S REEL BRAKE

In case of NG

- Confirm that no mechanical abnormality exists.
- Check the drive circuit of the reel brake solenoid (on the SV-206 board).
- Check the reel brake solenoid itself.



Locations of Reel Brake Solenoids

C03 : REEL/CAPSTAN MOTOR & FG CHECK

This menu checks the following items automatically and continuously.

- S reel FG duty ratio (C031 : S REEL FG/MOTOR CHECK)
- Capstan FG duty ratio (C033 : CAPSTAN FG/MOTOR CHECK)

- (1) Select C03 in the servo check mode and press the SET button to start the check.
 - The item name to be checked is displayed on the LCD monitor, and the menu number (C031 and C032) is displayed in a sub LCD.
- (2) Confirm that all checks are completed and that message “CHECK COMPLETE” is displayed.
If message “# CHECK INCOMPLETE #” is displayed halfway, refer to the NG cases during check below.
- (3) Press the MENU button to return to the selection of the servo check mode.

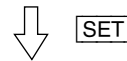
For NG during (C031) S REEL FG/MOTOR CHECK

Perform the S reel motor check (C010). If no abnormality is found in the motor or its drive circuit, perform the S reel FG duty adjustment (A001).

For NG during (C032) CAPSTAN FG/MOTOR CHECK

Perform the capstan motor check (C014). If no abnormality is found in the motor or its drive circuit, perform the capstan FG duty adjustment (A003).

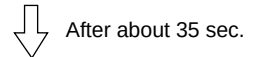
```
C00: INPUT CHECK
C01: MOTOR CHECK
C02: PLUNGER SOL. CHECK
*C03: REEL/CAPSTAN MOTOR
      & FG CHECK
```



```
REEL/CAPSTAN MOTOR
& FG CHECK

S REEL FG/MOTOR CHECK

CHECKING...
```



```
REEL/CAPSTAN MOTOR
& FG CHECK

CHECK COMPLETE
```



```
*C00: INPUT CHECK
C01: MOTOR CHECK
C02: PLUNGER SOL. CHECK
C03: REEL/CAPSTAN MOTOR
      & FG CHECK
```

(Ex. of NG)

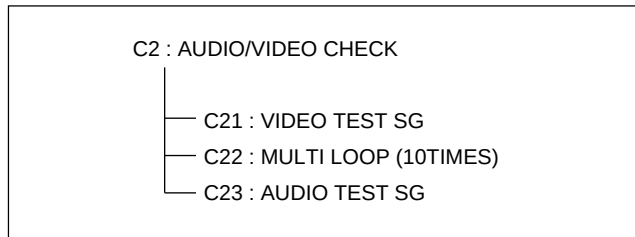
```
REEL/CAPSTAN MOTOR
& FG CHECK

S REEL FG/MOTOR CHECK

# CHECK INCOMPLETE #
```

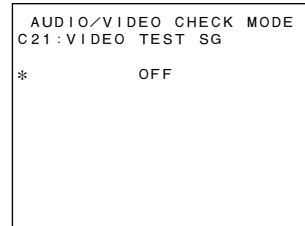
3-2-3. AUDIO/VIDEO CHECK Mode (C2)

The C2 : AUDIO/VIDEO CHECK mode has three menus that are useful for checking audio and video systems.



Menu Tree of Audio/Video Systems Check Mode

C21 : VIDEO TEST SG



This menu selects the operation in the maintenance mode of a video test signal generator incorporated into this unit.

OFF: The video test signal generator operation stops.

Except OFF: A video test signal generator outputs the selected signals (below).

100% color bars
75% color bars
75% reverse color bars

Bowtie

Pulse and bar

Multi-burst

H sweep

5-step

Ramp

Shallow ramp

Red signal

50% flat

100% flat

Black burst

Pathological check code

NTC7 (NTSC) ⇔ Only for 525/60 system

Line330 (625) ⇔ Only for 625/50 system

Setting of video test signal generator

To set the video test signal generator, turn the JOG dial while pressing the search button and display the desired setting.

This setting is valid until the maintenance mode is terminated. However, the C21 : VIDEO TEST SG setting is reset to OFF when the C22 : MULTI LOOP (10TIMES) setting is changed.

Notes

- This menu is set to OFF when the maintenance mode is activated.
- The output signal of a test signal generator can also be recorded on the tape. In this case, press the SET button and perform the recording operation with the white square is displayed in the upper-right position of the LCD monitor.

C22 : MULTI LOOP (10TIMES)

```
AUDIO/VIDEO CHECK MODE
C22: MULTI LOOP (10TIMES)
*          OFF
```

This menu selects the multi-loop function enabled or disabled in the maintenance mode, and additionally selects a video test signal when the multi-loop function is enabled. The video test signal that can be selected is output from an internal video test signal generator. The video test signal is the same in type as one described in a C21 : VIDEO TEST SG menu.

OFF: Normal state (in which no multi-loop operation is performed)

Except OFF: The selected signal is output from a video test signal generator for multi-loop operation.

Multi-loop function setting

To set the multi-loop function, turn the JOG dial while pressing the search button and display the desired setting. This setting is valid until the maintenance mode is terminated. However, the C22 : MULTI LOOP (10TIMES) setting is reset to OFF when the C21 : VIDEO TEST SG setting is changed.

Notes

- This menu is set to OFF when the maintenance mode is activated.
- The output signal during multi-loop operation can also be recorded on the tape. In this case, press the SET button and perform the recording operation with the white square is displayed in the upper-right position of the LCD monitor.

C23 : AUDIO TEST SG

```
AUDIO/VIDEO CHECK MODE
C23: AUDIO TEST SG
*          OFF
```

This menu selects the operation in the maintenance mode of an audio test signal generator incorporated in this unit.

OFF: The audio test signal generator operation stops.

1KHz SINE 0VU: The audio test signal generator outputs the signal (1 kHz sine, 0 VU).

Setting of audio test signal generator

To set the audio test signal generator, turn the JOG dial while pressing the search button and display the desired setting.

This setting is valid until the maintenance mode is terminated.

Notes

- This menu is set to OFF when the maintenance mode is activated.
- The output signal of a test signal generator can also be recorded on the tape. In this case, press the SET button and perform the recording operation with the white square is displayed in the upper-right position of the LCD monitor.

3-3. Error Logger Display Mode (M2)

3-3-1. Outline

This unit has an error log function that records the error generated or detected in this unit. The error logger display mode is used to superimpose the contents (data) of the error log on the LCD monitor and video monitor. The ordinary display mode (refer to Section 3-3-2) and the setting mode (refer to Section 3-3-3) that displays the menu to limit the error log display are available in this unit. The calendar/clock date incorporated into this unit can be set in the setting mode.

Activation and Termination

The two methods below are used to activate the error logger display mode. To terminate the error logger display mode, press the MENU button in the display mode. It returns to the operation state before activation when the error logger display mode is terminated.

- A. Select an M2 : ERROR LOGGER menu in the maintenance mode.
- B. Press the MENU button while pressing the ENTRY button on the control panel during ordinary operation.

Error Log

The recorded error log is classified into two categories: TAPE ERROR and WARNING.
(The error log belongs to the two types.)

Each log is constituted by a message, error generation date, and time code.

The message varies depending on the type of a log.

The error generation date is the date based on the calendar and clock of this unit. (The year is omitted.)

The time code records the time code data of the VTR side which is stored in this unit at the error occurs.

The maximum number of stored log is 100. If the number of log exceeds 100, the contents of oldest error log is erased sequentially.

TAPE ERROR

An error code and error message are recorded as a message when the error (error codes 01 to 99) related to a VTR and system occurs.

When multiple sub-error messages are displayed, the three sub-error messages from the top are recorded. For the error message, refer to Section 2.

WARNING

The warning log below is recorded in an error log.

- REFERENCE MISSING

This message is recorded when no signal is input to the REF VIDEO (reference video signal) connector after the power is turned on. But, this message is not recorded in the error log when the setting of 105 : REF SYSTEM ALARM in a setup menu to OFF.

3-3-2. Display Mode

The operation in the ordinary display mode is described based on a display example on the LCD monitor.

The log number/total log count is displayed in the second line. “(001/000)” is displayed when no log exists.

The third to tenth lines (eight lines) are the area where logs are displayed. The three-digit number on the left indicates the log number. The contents of a log are displayed on its right.

A calendar/clock is displayed on the lowest line.

Notes

- The top screen on the right is the example displayed when the error logger mode is first activated after the power is turned on. The second-time or later screen is displayed with the preceding display completed.
- In a sub LCD, only the log number/total log count (e.g., “ERR LOG 001/03”) is displayed.

JOG dial (JOG mode)

To display the log number not displayed on the screen, turn the JOG dial and move the * mark.

CTL/TC/U-BIT button

On this screen, the whole message is displayed partially. To display other information (date and time code), push the CTL/TC/U-BIT button.

F FWD button

The whole contents of a log to which the * mark was set are displayed while the F FWD button is pressed.

The category (error code for TAPE ERROR) of an error log is displayed in the third line. Messages are displayed in the fourth and fifth line
s, and sub-error messages in the sixth to eighth lines. The date (not including the year) is displayed in the ninth line, and time code in the tenth line.

Other logs can be displayed in this display state when the JOG dial is turned with the F FWD button pressed.

RESET button

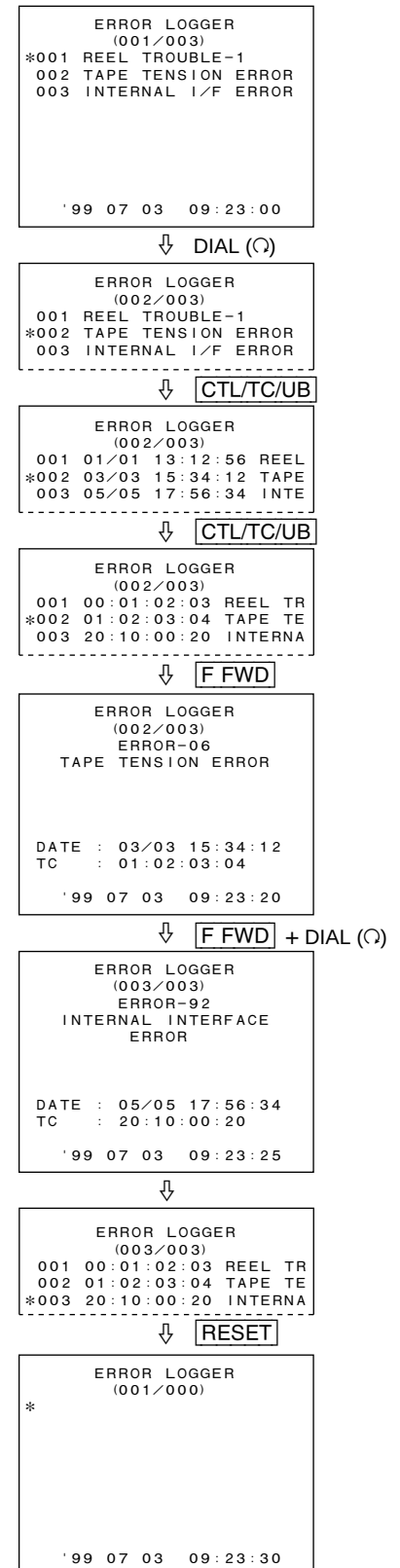
The recorded all logs are erased when the RESET button is pressed.

Note

Usually, do not erase any log.

There may be some error logs that are useful for confirmation of the progress when a trouble occurs or that are important in preventing a trouble from occurrence.

Example of display and operation



SET button

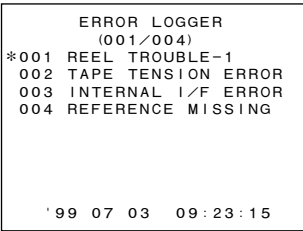
A white square mark is displayed in the upper-right position of the LCD monitor when the SET button is pressed. The unit then enters the normal operation state (in which the normal operation of this unit except a menu system can be performed). However, the character information (time code or operation status) superimposed during normal operation is not displayed in this case.
To return to the former state, press the MENU button.

MENU button

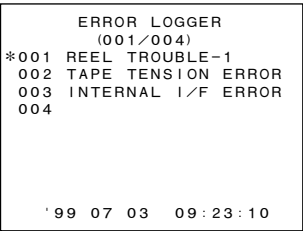
The display returns to the error logger display mode when the MENU button is pressed with the white square displayed in the upper-right position of the LCD monitor.
Pressing the MENU button in the error logger display mode, terminates the error logger display mode.

Limited-display screen

For the error log of a category that is set to OFF in the menu of setting mode (refer to Section 3-3-3), information items other than a log number are not displayed. However, the whole display using the F FWD button is not influenced by the setting.

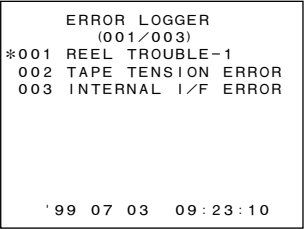


Ordinary Screen
(No limited-display)

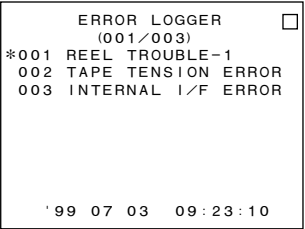


Only Warning Turned Off

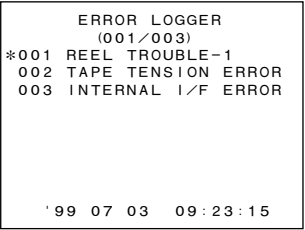
Example of display and operation



SET



MENU



3-3-3. Setting Mode

The setting mode is used to display a menu that limits the display of an error log. In this menu, the display can be turned on and off for each error log category.

A calendar/clock can also be set in this menu.

Notes

- The top and second screens on the right are the examples displayed when the error logger mode and setting mode are first activated after the power is turned on. The second-time or later screen is displayed with the preceding display completed.
- A white square mark is displayed in the upper-right position of the LCD monitor as in the display mode when the SET button is pressed in the setting mode (except when “Push SET Button” is displayed during calendar/clock setting). The unit then enters the normal operation state (in which the normal operation of this unit except a menu system can be performed). The former state is returned when the MENU button is pressed.

Entering the setting mode

Press the SET button while pressing the STOP button in the display mode.

Returning to the display mode

Press the SET button again while pressing the STOP button or press the MENU button.

Setting menu

The seventh to tenth lines on the LCD monitor are a setting menu. The display in the display mode is left in the first to fifth lines.

Each setting when the power is turned on is all ON.

The error log belonging to a category is limited in display when each item is set to OFF. (Refer to the “Limited-display screen” on the previous page.)

The changed setting is valid until the power is turned off. How to change the setting is described below.

- (1) Turn the JOG dial and move the * mark to the category to be changed in setting.

Notes

- In a sub LCD, the contents of the *-marked line are displayed on the LCD monitor.
 - Turn the JOG dial continuously in FORWARD (↻) direction for the calendar/clock setting. (Refer to the next page.)
- (2) To change the setting from ON to OFF, turn the JOG dial in REVERSE (↺) direction while pressing the search button.
To change it from OFF to ON, turn the JOG dial in FORWARD (↻) direction while pressing the search button.
 - (3) To change the setting of other categories, repeat steps (1) and (2).
 - (4) Press the MENU button to terminate the setting mode.

Example of display and operation

Display mode

```

      ERROR LOGGER
      (001/003)
*001 REEL TROUBLE-1
  002 TAPE TENSION ERROR
  003 INTERNAL I/F ERROR

'99 07 03 09:23:15
  
```

Setting mode ↓ [STOP] + [SET]

```

      ERROR LOGGER
      (001/003)
  001 REEL TROUBLE-1
  002 TAPE TENSION ERROR
  003 INTERNAL I/F ERROR
-----
*TAPE ERROR          ON
  WARNING            ON

'99 07 03 09:23:17
  
```

↓ DIAL(↻)

```

      ERROR LOGGER
      (001/003)
  001 REEL TROUBLE-1
  002 TAPE TENSION ERROR
  003 INTERNAL I/F ERROR
-----
  TAPE ERROR          ON
*WARNING             ON

'99 07 03 09:23:20
  
```

↓ [Search] + DIAL(↻)

```

      ERROR LOGGER
      (001/003)
  001 REEL TROUBLE-1
  002 TAPE TENSION ERROR
  003 INTERNAL I/F ERROR
-----
  TAPE ERROR          ON
*WARNING             OFF

'99 07 03 09:23:22
  
```

↓ [Search] + DIAL(↻)

```

      ERROR LOGGER
      (001/003)
  001 REEL TROUBLE-1
  002 TAPE TENSION ERROR
  003 INTERNAL I/F ERROR
-----
  TAPE ERROR          ON
*WARNING             ON

'99 07 03 09:23:24
  
```

Calendar/clock setting

The calendar/clock's date and time of this unit can be adjusted in the setting mode as described below.

In a display/operation example on the right, 9:23 of July 3rd in 1999 is set to 15:00 of August 1st in 1999.

- (1) Turn the JOG dial slowly and turn on and off the numerical value (year, month, day, hour, minute, or second) of the calendar/clock item to be changed.

Notes

- When an * mark is displayed in the setting menu, turn the JOG dial continuously in FORWARD (↻) direction until the numerical value blinks. For the calendar/clock setting, an * mark is not displayed on the LCD monitor.
 - Do not turn the JOG dial excessively in REVERSE (↺) direction during setting. An * mark is displayed in the setting menu and the calendar/clock setting is stopped.
- (2) Turn the JOG dial while pressing the search button and change the numerical value to the desired one.

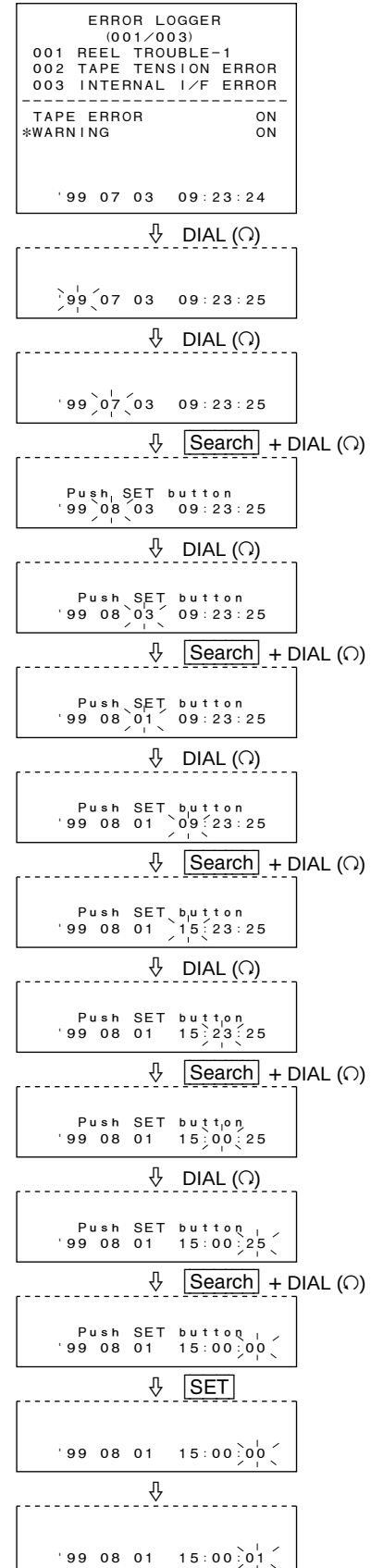
Notes

- The count display of seconds stops when the numerical value is changed. The internal data is updated.
 - On the LCD monitor, message "Push SET Button" is displayed in the upper line.
- (3) Repeat steps (1) and (2) until the numerical values in other items are changed completely.
 - (4) Press the SET button to save the setting values.

Notes

- To change only the date, the time must also be set again.
 - To cancel the calendar/clock setting, terminate the setting mode or turn the JOG dial in REVERSE (↺) direction until an * mark is displayed in the setting menu (the setting menu item is displayed for a sub LCD).
 - The unit enters the normal operation state when the SET button is pressed with message "Push SET Button" not displayed on the LCD monitor. Press the MENU button to return to the former state.
 - To set the time accurately, press the SET button immediately the display and current time coincided.
- (5) Press the MENU button to terminate the setting mode.

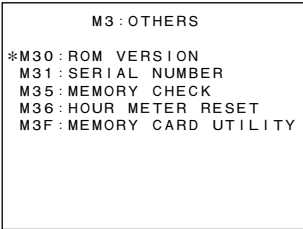
Example of display and operation



3-4. OTHERS CHECK Mode (M3)

3-4-1. Outline

The OTHERS check mode is used for other checks. This unit has the four menus and one submode (M3F) below.

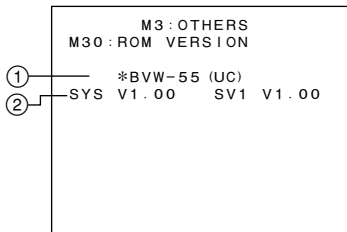


OTHERS CHECK mode

Title	Page	Description
M30 : ROM VERSION	3-30	Displays the unit's model name and ROM version.
M31 : SERIAL NUMBER	3-30	Displays and corrects the serial number of this unit.
M35 : MEMORY CHECK	—	Displays the data in ROM. (Used for check at the factory.) (Refer to the maintenance manual part 2 volume 1.)
M36 : HOUR METER RESET	3-31	Displays and resets the resettable hours meter and thread counter.
M3F : MEMORY CARD UTILITY	—	Uploads and downloads the software using the memory card box. (Refer to the maintenance manual part 2 volume 1.)

3-4-2. ROM VERSION Display Menu (M30)

This menu displays the model name of this unit, the destination and the ROM version.



Note

The display on the left is one of the displayed examples.

Description of LCD monitor

- ① The model name of this unit and the destination in parentheses are displayed on the LCD monitor. The model name and destination are detected from the setting condition of the DIP switch (S202) on the SY-272 board.
- ② Each version number of a system control ROM (SYS) and a VTR servo ROM (SV1) is displayed on the LCD monitor.

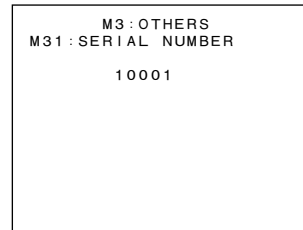
Menu operation

Turn the JOG dial to move the * mark.

The contents of an *-marked item on the LCD monitor are displayed in a sub LCD.

3-4-3. SERIAL NUMBER Display Menu (M31)

This menu displays the serial number of this unit. When each serial number does not coincide because of repair, it can be set again in this menu.



Notes

- Set the serial number again after the SY-272 board or the NV-RAM (IC112 on the SY-272 board) is replaced.
- “-----” is displayed in the state where no serial number is set.

Serial number setting

- (1) Turn the JOG dial to turn on and off the digit you want to set.
- (2) Turn the JOG dial while pressing the search button and change the digit number.
 - Message “Push SET Button” is displayed on only the LCD monitor when the serial number is changed.
 - To cancel the setting, press the MENU button to terminate this menu.
- (3) Repeat steps (1) and (2) for each digit.
- (4) Press the SET button to save the set serial number.
 - Message “Saving...” is displayed on only the LCD monitor. If no abnormality is found, the display changes to “Save Complete” after a few seconds.

3-4-4. HOUR METER RESET Menu (M36)

This menu can display and reset the values of the resettable hours meter and thread counter.

M3 : OTHERS				
M36 : HOUR METER RESET				
*DRUM	HOURS		1 2 3 4	
TAPE	HOURS		1 2 3	
THREAD	COUNTER		2 3 4 5	

Description of LCD monitor

- DRUM HOURS: Indicates the total of drum rotation time. Same as in setup menu ITEM-H12.
- TAPE HOURS: Indicates the total of tape transport time. Same as in setup menu ITEM-H13.
- THREAD COUNTER: Indicates the total of threading count. Same as in setup menu ITEM-H14.

Menu operation

Turn the JOG dial to move the * mark.

The contents of the *-marked line on the LCD monitor are displayed in a sub LCD.

To reset

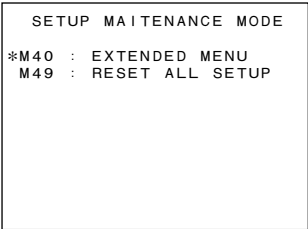
The former state cannot be returned when the SET button is pressed for reset operation.

- (1) Turn the JOG dial and move the * mark to the item to be reset.
- (2) Turn the JOG dial in REVERSE (↺) direction while pressing the search button. = The display value then becomes zero ("0").
 - Message "Push SET Button" is displayed on only the LCD monitor when the display value is set to "0".
 - To return to the former state, turn the JOG dial in FORWARD (↻) direction.
- (3) If there are other items to be reset, repeat steps (1) and (2).
- (4) Press the SET button to save the reset data.
 - Message "Saving ..." is displayed on only the LCD monitor. If no abnormality is found, the display changes to "Save Complete" after a few seconds. To turn off "Save Complete", turn the JOG dial.

3-5. Setup Maintenance Mode (M4)

3-5-1. Outline

The setup maintenance mode is used for the setup menu.
This unit has two menus below.



Method to select M49: RESET ALL SETUP

- (1) Turn the JOG dial while pressing the PLAY button and move the “*” mark.
- (2) Press the SET button.

3-5-2. EXTENDED MENU Display Selection Menu (M40)

It is selected by switching the DIP switch S202-2 on the SY-272 board whether display the extended menus of the setup menu or not.
However, only when this switch is OFF (factory setting), the extended menus are enabled to display by this menu.

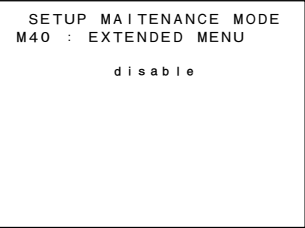
Note

When the setting of the DIP switch S202-2 is ON, the extended menus are enabled to display regardless of the setting in this menu.

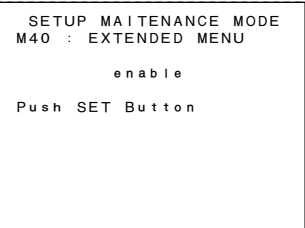
To execute

- (1) Turn the JOG dial while pressing the search button, display the desired setting.
 disable: Not display the extended menu
 enable: Display the extended menu
- (2) Press the SET button.

Example of display and operation



(1) ↓ [Search] +DIAL (↻)



(2) ↓ [SET]

3-5-3. RESET ALL SETUP Executing Menu (M49)

Reset the following settings to the factory setting at once.

- All “current” and “bank” in the setup menu
For 525/60 system: current, bank1, bank2, bank3, bank4
For 625/50 system: current, bank1, bank2, bank3, bank4
- ITEM-013:525/625 SYSTEM SELECT in the setup menu
- M40:EXTENDED MENU in the maintenance mode

To execute

- (1) Turn the JOG dial while pressing the search button, move the * mark to ON.
 - The message “All the System Setup data will be changed to Factory default.” is displayed on the LCD monitor.
- (2) Press the SET button.
 - The message “Executing...” is displayed on the LCD monitor during changing the setting.
- (3) Check that the setting change is completed.
 - After the setting change is completed, the message “Complete” “Turn off/on POWER!!” is displayed on the LCD monitor .
- (4) Turn off the power.
- (5) Turn on the power again.

Example of display and operation

```
SETUP MAITENANCE MODE
M49 : RESET ALL SETUP

*OFF
```

(1) ↓ **Search** +DIAL (↻)

```
SETUP MAITENANCE MODE
M49 : RESET ALL SETUP

*ON

Push SET Button

----- Caution -----
All the System Setup
data will be changed
to Factory default.
```

(2) ↓ **SET**

```
SETUP MAITENANCE MODE
M49 : RESET ALL SETUP

*ON

Executing...

----- Caution -----
All the System Setup
data will be changed
to Factory default.
```

(3) ↓ Confirm

```
SETUP MAITENANCE MODE
M49 : RESET ALL SETUP

*ON

Complete

Turn off/on POWER!!
```

(4) ↓ Turn OFF

(5) ↓ Turn ON

Section 4

Periodic Maintenance and Inspection

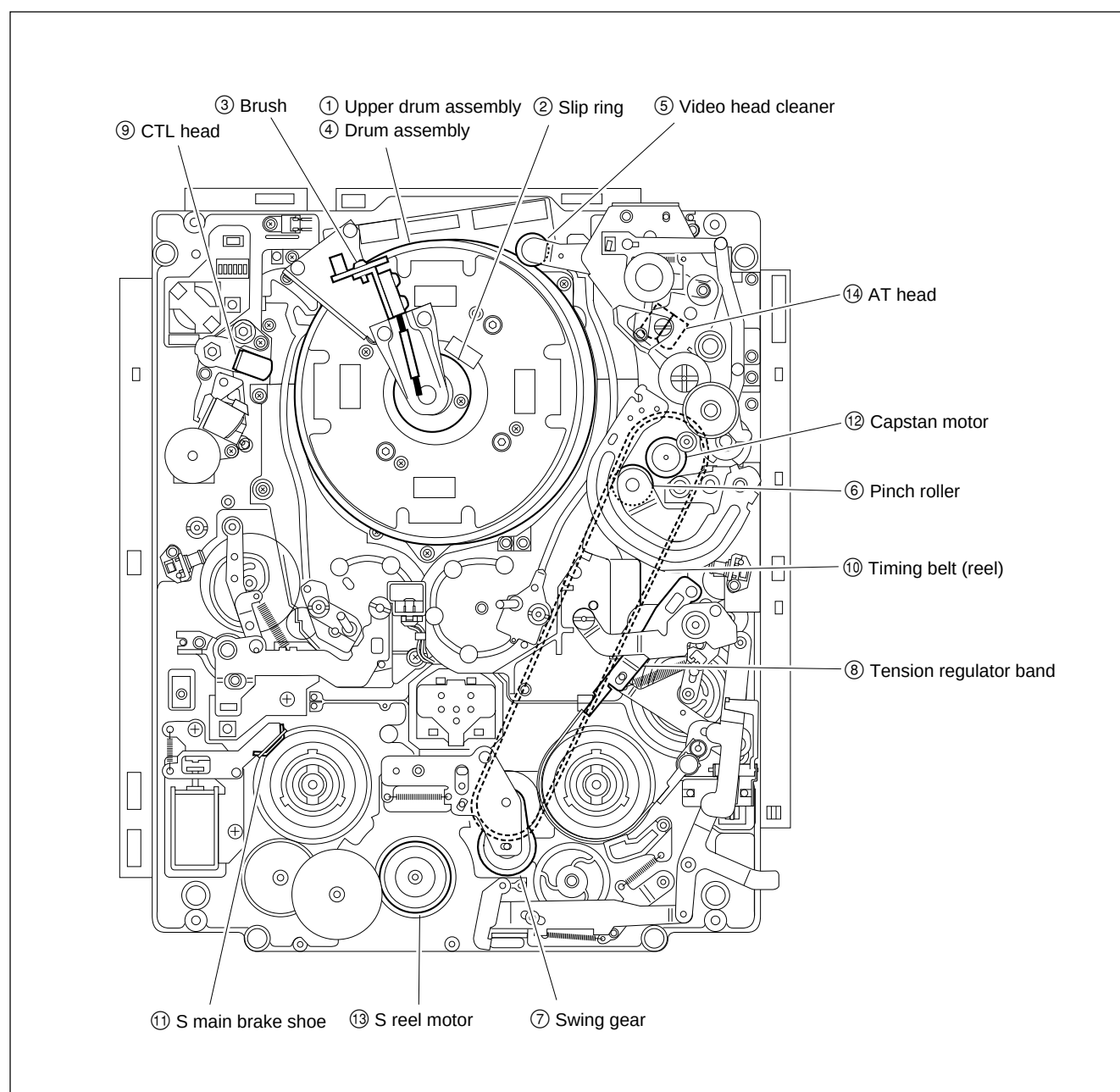
This section explains about periodic maintenance and how to clean.

4-1. Periodic Maintenance

To make the most of the functions, fully realize the performances of this unit and to lengthen the life of the unit, periodic check and parts replacement are recommended.

4-1-1. Index

It is necessary to check and replace periodically to the following parts.
The numbers in the illustration correspond to the table in the next page.



4-1-2. Periodic Replacement and Check Item Table

The replacement time shown in the following table is not the guarantee term of parts. The replacement time of parts varies depending on the operating environment and conditions of the unit.

Especially, the pinch roller and video head cleaner may be required replacing earlier than replacement period shown in table depending on their dirt or abrasion.

The part with arrow “↓” in the table is included in the part pointed by the arrow.

When the part pointed by the arrow is to be replaced, the part with the arrow will be replaced at the same time.

R : Replacement

No.	Replacement Part	Mode	Inspection hours							Part No.	Description
			1,000	2,000	3,000	4,000	5,000	6,000			
1.	Upper drum assembly	A		R		↓		R	A-8322-731-A	Upper drum assembly DBR-47-R	
2.	Slip ring	A		R		↓		R	A-8317-463-A	Slip ring assembly, 4ch (RP)	
3.	Brush	A		R		↓		R	A-8317-464-A	Brush assembly, 4ch (RP)	
4.	Drum	A				R			A-8322-730-A	Drum assembly DBH-47A-R	
5.	Video head cleaner	B	R	R	R	R	R	R	A-8322-054-A	Cleaning roller assembly with a CR cap	
6.	Pinch roller	B		R		R		R	X-3678-926-1	Pinch Roller	
7.	Swing gear	B		R		R		R	A-8278-829-C	Gear assembly	
8.	Tension regulator band	B		R		R		R	A-8278-704-D	Tension regulator band assembly	
9.	Timing belt (reel)	B			R			R	3-611-544-01	Timing belt	
10.	S main brake shoe	B			R			R	3-611-473-01	Brake shoe	
11.	Capstan motor	B						R	8-835-590-01	DC motor SCV-0703A/J-N	
12.	S reel motor	B						R	8-835-589-01	DC motor SRV11A/J-N	
13.	AT head	B						R	8-825-623-22	Audio head EPS244-2103B	

Mode A : Drum rotating hours

Mode B : Tape running hours

4-1-3. Hours Meter

This unit can display an hours meter on the LCD monitor. Perform a periodic check with this hours meter as a reference.

1. Contents of display

Menu No.	Display	Contents
H01	OPERATION HOURS	Sum of energized time
H02	DRUM RUNNING HOURS	Sum of drum rotating time
H03	TAPE RUNNING HOURS	Sum of tape running time
H04	THREADING COUNTER	Sum of threading
H12	DRUM RUNNING HOURS	Sum of drum rotating time (Resettable)
H13	TAPE RUNNING HOURS	Sum of tape running time (Resettable)
H14	THREADING COUNTER	Sum of threading (Resettable)

2. Display procedures

- (1) Press the MENU button of the control panel to display the menus and their contents.
- (2) Press the MENU button again to exit the MENU.

3. How to reset

Refer to Section 3-2-4 in “3. Maintenance Mode” to reset the resettable menus (H12, H13, H14).

4-2. Cleaning

To make the most of the functions, fully realize the performance of this unit, and to lengthen the life of the unit and tape, clean the components often.

4-2-1. Using Cleaning Tape

If the video heads are clogged, clean the video head by the following procedure.

Make sure to use the specified cleaning tape. If other tape is used, unusual abrasion or damage of the video heads may occur.

Specified cleaning tape: BCT-5CLN

Procedure

1. Press the EJECT button.
Then the cassette compartment is opened.
 2. Insert the Cleaning tape BCT-5CLN to the unit.
 3. Push the control panel down to close the control panel.
 4. Press the EJECT and PLAY buttons simultaneously.
The cleaning tape is played back for approx. 5 seconds. After that, the cleaning tape will be ejected automatically.
- Notes**
- If the cleaning tape is not ejected after playing back more than 5 seconds, be sure to press the EJECT button immediately and eject the cleaning tape.
 - Do not place the cleaning tape in the STOP mode, and do not put the unit in fast-forward and rewind mode, because the video heads may be damaged.
5. Confirm that the head clogging is clear.

If the video heads are still clogged after cleaning by cleaning tape, clean them by cleaning cloth. (Refer to Section 4-2-3.)

4-2-2. General Information for the Use of Cleaning Cloth

1. Cautions

- Be sure turn the power off before cleaning.
- Each block in the mechanical deck consists of a precision part and is adjusted precisely. Be careful not to damage each part and to apply an excessive force during cleaning.
- Do not touch the greased portions during cleaning. If grease attaches to cleaning cloth, replace the cleaning cloth with a new one. If a cleaning cloth smeared with grease is used, grease may attach to the places where it should not.
- Do not insert a cassette tape before a cleaning fluid completely evaporates after cleaning.

2. Preparation

- (1) Turn the power off.
- (2) Remove the upper frame. (Refer to Section 1-6-2.)
- (3) Remove the cassette compartment. (Refer to Section 1-7.)

4-2-3. Cleaning of Video Heads and Tape Running Surface of Upper Drum

WARNING

Never contact the rotating drum. Be sure to turn off the power and wait until the drum comes to a complete stop before cleaning.

Caution

The video heads are the part that can be damaged easily. Be careful not to damage the video heads during cleaning.

Tools

- Cleaning cloth: 3-184-527-01
- Cleaning fluid: 9-919-573-01

Note

Never use a cotton swab to clean the video heads.

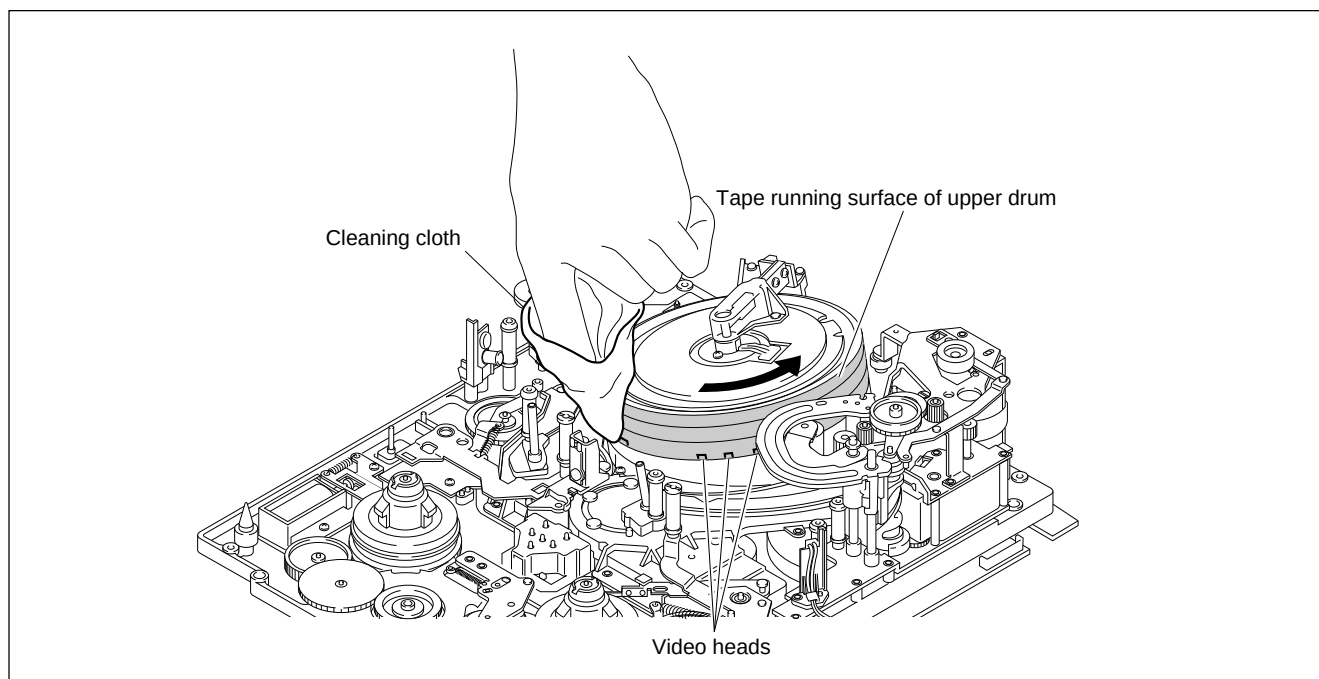
Procedures

1. Hold the cleaning cloth moistened with a cleaning fluid keeping it without becoming wrinkled. And then slightly press the cleaning cloth against the video heads.
2. Slowly rotate the upper drum counterclockwise two or three turns and clean the tape running surface and video heads with the cleaning cloth moistened with cleaning fluid.

Note

Be sure to rotate the upper drum counterclockwise and clean the video heads along the circumference. Do not rotate the upper drum in the opposite direction (clockwise) or clean it in the vertical direction. This will damage the brush and slip ring or the video heads.

3. After cleaning, wipe them with a dry cleaning cloth two or three times.



Cleaning of Video Heads and Tape Running Surface of Upper Drum

4-2-4. Cleaning of Lead Surface and Tape Running Surface of Lower Drum

Caution

Be careful not to damage the lower drum (specially lead surface) during cleaning.

Pay careful attention when cleaning the edge portion above the lower drum because it is located near the video heads.

Tools

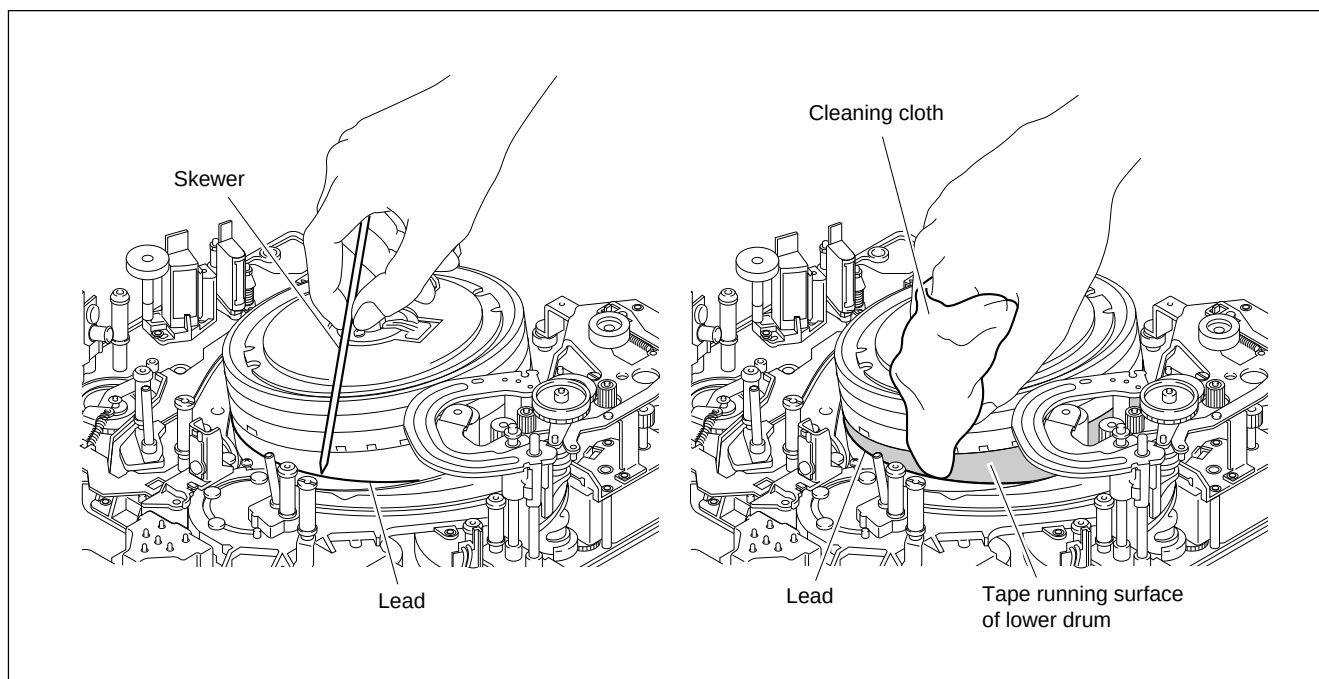
- Cleaning cloth: 3-184-527-01
- Cleaning fluid: 9-919-573-01
- Skewer or an equivalent (Not metallic.)

Procedures

1. As shown in the figure, remove the magnetic powder with a skewer, running the skewer on the drum lead surface.

Notes

- Never use a metallic skewer to avoid damage to the tape running surface.
 - Be sure to remove the magnetic powder completely. Tracking may be badly influenced when magnetic powder attaches to the drum lead surface.
2. Clean the drum lead surface and lower drum's tape running surface (shaded portion in the figure) with a cleaning cloth moistened with a cleaning fluid.
 3. After cleaning, wipe them with a dry cleaning cloth two or three times.



Cleaning of Lead Surface and Tape Running Surface of Lower Drum

4-2-5. Stationary Heads and Tape Cleaner Cleaning

WARNING

Keep bare hands away from the sharp edge of the tape cleaner to avoid cuts and injuries.
Pay careful attention when cleaning the tape cleaner.

Caution

Be careful not to damage the head surface when cleaning the stationary heads.

Tools

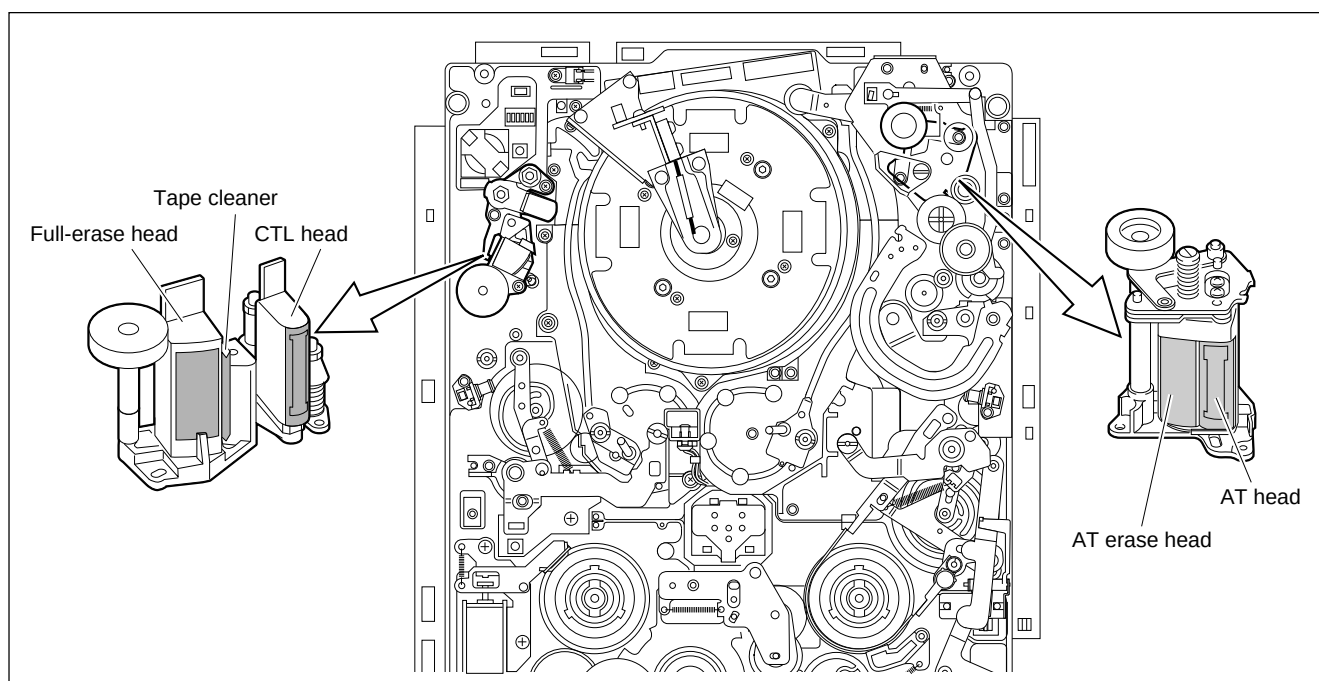
- Cleaning cloth: 3-184-527-01
- Cleaning fluid: 9-919-573-01

Procedures

1. Clean the tape running surfaces of the full-erase head, tape cleaner, CTL head, AT erase head and AT head in the vertical direction with a cleaning cloth moistened with a cleaning fluid.

Notes

- An error may occur in the playback or recording when magnetic powder attaches to the head gap portion of the full-erase head, CTL head, AT erase head or AT head. Remove the magnetic powder completely during cleaning.
 - Do not contact the edge portion of the tape cleaner with bare hands.
 - Pay careful not to damage the tape cleaner.
2. After cleaning, wipe them with a dry cleaning cloth two or three times.



Stationary Heads and Tape Cleaner Cleaning

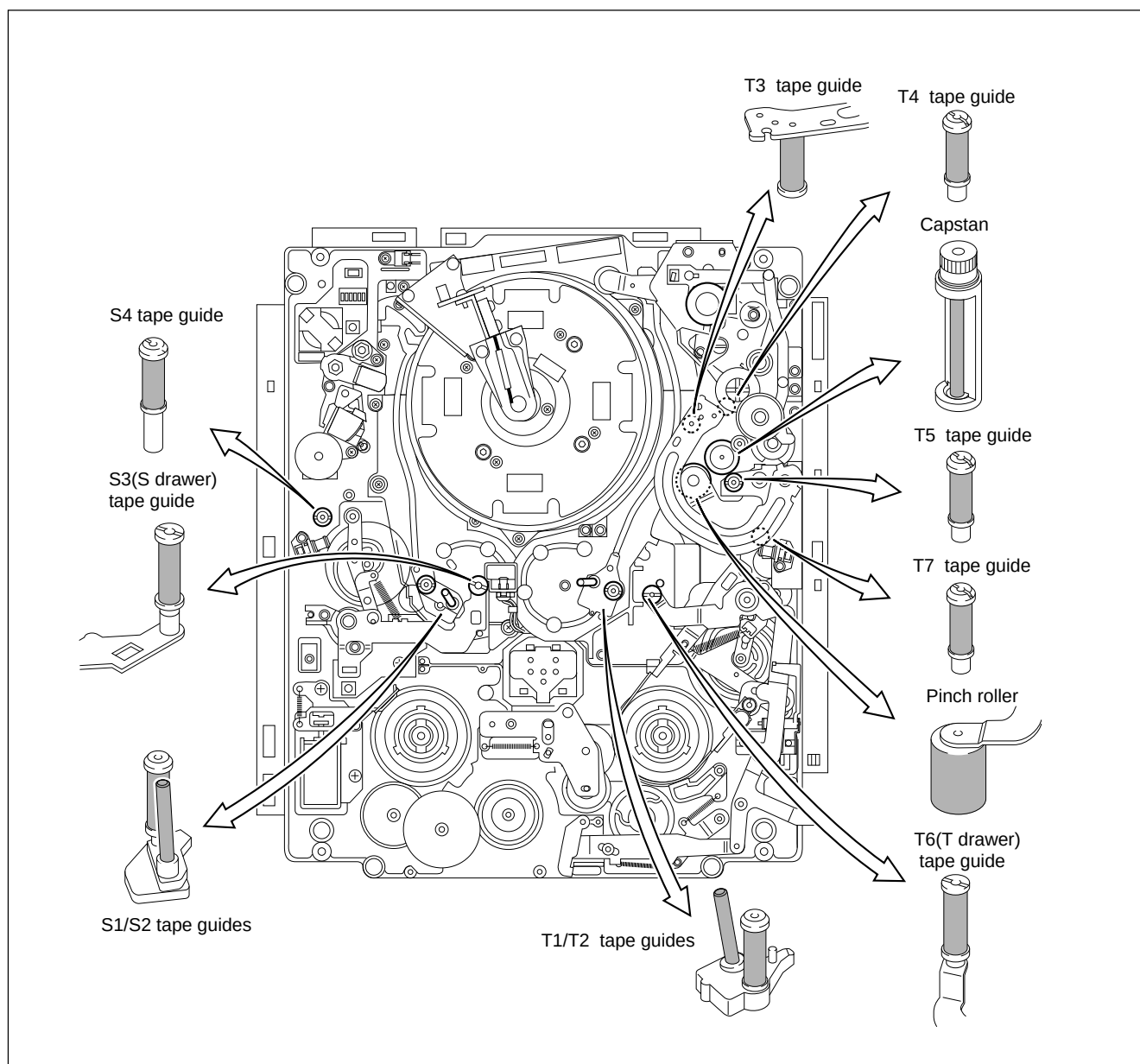
4-2-6. Tape Running System Cleaning

Tools

- Cleaning cloth: 3-184-527-01
- Cleaning fluid: 9-919-573-01

Procedures

1. Clean the tape running surfaces (shaded portions in the figure) of each guide with cleaning cloth moistened with a cleaning fluid.
2. After cleaning, clean them with a dry cleaning cloth two or three times.



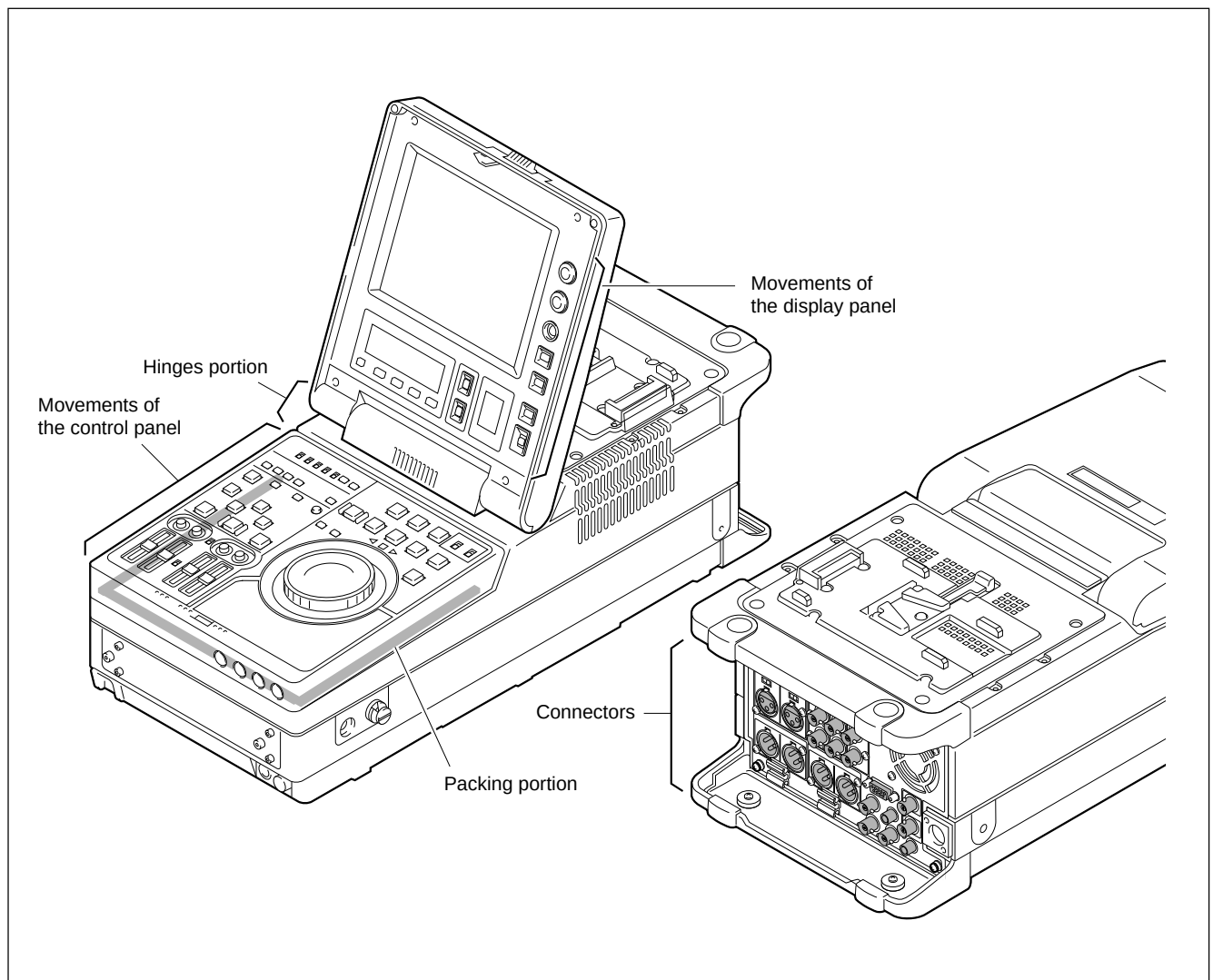
Tape Running System Cleaning

4-3. Cares After Outdoor Use

After using the unit outdoors (especially dusty areas, seaside, sandy beach or the like), it is recommended to do the following steps:

1. Dust off the hinges, packing portion and movements of the display panel and control panel using a vacuum cleaner.
2. Clean off sand and other dust in the unit carefully.
3. Clean the video heads, upper and lower drums and stationary heads. (Refer to Sections 4-2-3, 4-2-4, 4-2-5)
4. Clean the tape running surfaces (tape guides, capstan shaft and pinch roller). (Refer to Section 4-2-6.)
5. Clean the connectors on the connector panel.
6. Carry out the common operation check (REC, PLAY etc.) and check that the unit has not an abnormal sound or action.

If the unit has an abnormal condition, consult your local Sony Sales Office/Service Center.



Cares After Outdoor Use

Section 5

Spare Parts

5-1. Notes on Repair Parts

1. Safety Related Components Warning

Components marked △ are critical to safe operation. Therefore, specified parts should be used in the case of replacement.

2. Standardization of Parts

Some repair parts supplied by Sony differ from those used for the unit. These are because of parts commonality and improvement.

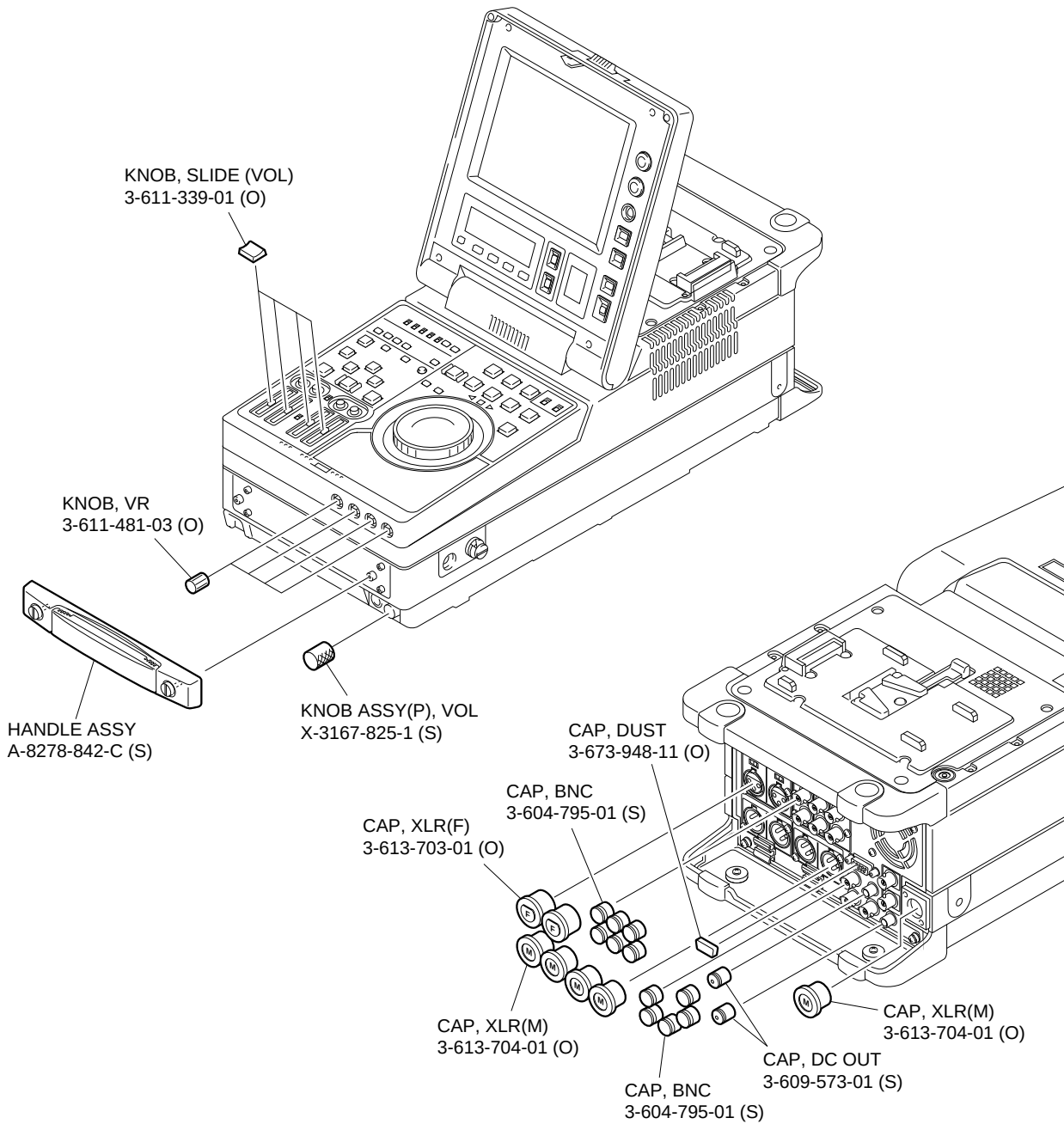
Parts list has the present standardized repair parts.

3. Stock of Parts

Parts marked with “o” at SP (Supply Code) column of the spare parts list may not be stocked. Therefore, the delivery date will be delayed.

5-2. Exploded Views

Ex.) KNOB, SLIDE (VOL) ← Description
 3-611-339-01 (O) ← Part No. (Supply code)



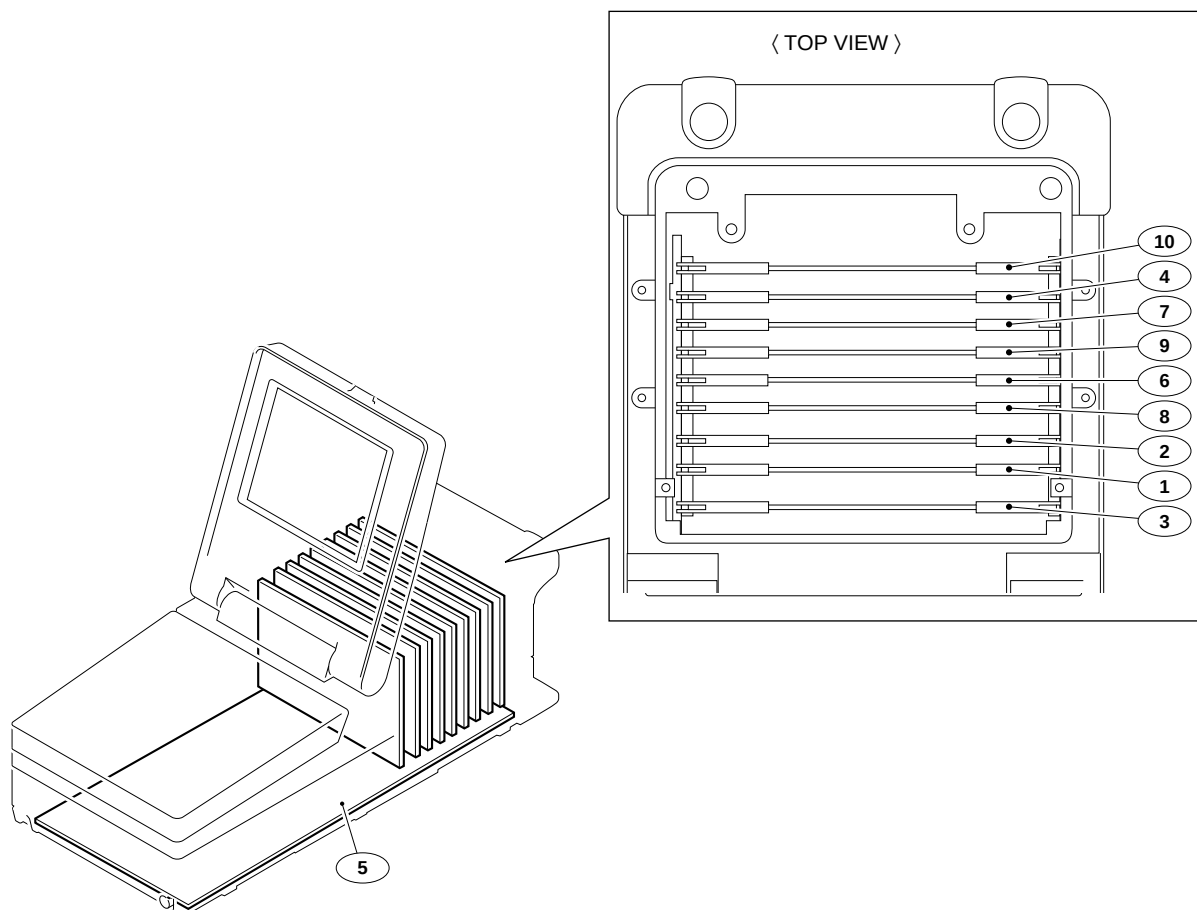
5-3. Plug-in Boards

No.	Board name	Part No.	SP	Description	Whether setting/adjustment after board replacement is required or not
1	AFM-16	A-8321-754-A	o	MOUNTED CIRCUIT BOARD, AFM-16	Required*1
2	APR-42	A-8321-756-A	o	MOUNTED CIRCUIT BOARD, APR-42	Required*1
3	AU-262	A-8321-758-A	o	MOUNTED CIRCUIT BOARD, AU-262	Required*1
4	DEC-97	A-8316-704-A	o	MOUNTED CIRCUIT BOARD, DEC-97	Required*1
5	DM-121	A-8321-760-A	o	MOUNTED CIRCUIT BOARD, DM-121	Required*1
6	MD-122	A-8321-762-A	o	MOUNTED CIRCUIT BOARD, MD-122	Required*1
7	SDI-23	A-8316-672-A	o	MOUNTED CIRCUIT BOARD, SDI-23	Required*1
8	SY-272	A-8321-764-A	o	MOUNTED CIRCUIT BOARD, SY-272	Required*2
9	TG-191	A-8320-125-A	o	MOUNTED CIRCUIT BOARD, TG-191	Required*1
10	VPR-59	A-8321-766-A	o	MOUNTED CIRCUIT BOARD, VPR-59	Required*1

*1: For adjustment, refer to Section 6 of the maintenance manual Part2 Volume1.

*2: For switch setting, refer to Section 1-9.

For calendar/clock setting, refer to Section 3-3-3.



5-4. Supplied Accessories List

Q'ty	Part No.	SP	Description
1pc	A-6772-374-B	s	BELT ASSY, SHOULDER
11pcs	3-604-795-01	s	CAP, BNC
2pcs	3-609-573-02	s	CAP, DC OUT
2pcs	3-613-703-01	o	CAP, XLR(F)
5pcs	3-613-704-01	o	CAP, XLR(M)
1pc	3-673-948-11	o	CAP, DUST

5-5. Fixtures List

Part No.	SP	Description
A-8321-000-A	o	EXTENSION BOARD (EX-706)
A-8322-417-A	o	CN-1935 MOUNTED CIRCUIT BOARD
J-6035-070-A	o	EXTRUCTION TOOL (for PLCC socket)
J-6080-840-A	s	INSPECTION MIRROR
J-6252-520-A	o	TORQUE SCREWDRIVER (12 kgf·cm) (1.2 N·m)
J-6325-400-A	o	TORQUE SCREWDRIVER (3 kgf·cm)
J-6325-110-A	o	TORQUE SCREWDRIVER'S BIT (l = 75 mm)
J-6325-380-A	o	TORQUE SCREWDRIVER'S BIT (l = 162 mm)
J-6322-420-A	o	TAPE GUIDE ADJUSTMENT DRIVER (45)
J-6323-530-A	o	STOP WASHER FASTENING TOOL
J-6323-890-A	o	TORQUE CASSETTE (FWD BACK TEN.)
J-6324-150-A	o	REEL TABLE HEIGHT ADJUSTMENT TOOL
J-6326-120-A	o	HEXAGONAL BIT (d = 1.5 mm, l = 85 mm)
J-6332-240-A	o	VISC PHASE ADJUSTING TOOL
J-6530-380-A	o	CONVERSION CABLE, 6P-9P
J-6530-880-A	o	CASSETTE REFERENCE PLATE
1-958-196-14	o	EXTENSION HARNESS, SR66-EQ3
1-959-894-11	o	EXTENSION HARNESS, DR1
1-959-895-11	o	EXTENSION HARNESS, DR2
3-184-527-01	s	CLEANING CLOTH (15 cm x 15 cm)
3-649-266-01	s	PARALLEL PIN (d = 1.6 mm)
3-703-358-04	o	PARALLEL PIN (d = 2.0 mm)
7-432-114-11	o	SCREW LOCKING COMPOUND (200 g)
7-651-000-10	s	SONY GREASE SGL-601 (50 g)
7-651-000-11	s	SONY GREASE SGL-801 (50 g)
7-661-018-18	s	DIAMOND OIL NT-68 (50 ml)
7-700-751-01	s	BOX DRIVER (d = 4.5 mm)
8-960-096-01	o	ALIGNMENT TAPE, CR2-1B
8-960-096-41	o	ALIGNMENT TAPE, CR5-1B
8-960-096-51	o	ALIGNMENT TAPE, CR2-1B PS (for PAL)
8-960-097-44	o	ALIGNMENT TAPE, CR5-2 (OXIDE)
8-960-097-45	o	ALIGNMENT TAPE, CR8-1 (OXIDE)
8-960-096-91	o	ALIGNMENT TAPE, CR5-1B PS (METAL)(for PAL)
8-960-096-86	o	ALIGNMENT TAPE, CR8-1B PS (METAL)(for PAL)
8-960-098-44	o	ALIGNMENT TAPE, CR5-2A PS (OXIDE)(for PAL)
8-960-098-45	o	ALIGNMENT TAPE, CR8-1A PS (OXIDE)(for PAL)
9-919-573-01	s	CLEANING LIQUID
A-8319-485-A	o	IC MEMORY CARD BOX, CDS-20 ASSEMBLY
1-772-003-11	o	CARD (2 MB), MEMORY
1-772-004-11	o	CARD (4 MB), MEMORY



Section 6

Circuit Description and Overall Block Diagram

The following block diagrams are provided after the circuit description.

- Overall (1/3) : Signal Processing System..... 6-4
- Overall (2/3) : System Control & Servo Control System(1/2)..... 6-6
- Overall (3/3) : System Control & Servo Control System (2/2)..... 6-8

(1) Video Signal Processing System (CP-317, DEC-97, SDI-23, VPR-59, DP-300, TG-191)

Recording system

The analog composite video signal input from the VIDEO INPUT connector is sent from the CP-317 board to the DEC-97 board, A/D converted, converted to the digital component signal (parallel) by the composite decode block. This digital component signal is sent to the input TBC block on the SDI-23 board.

The SDI signal input from the SDI INPUT connector is input to the SDI-23 board, serial/parallel converted, the SDI video signal is extracted at the D1 decode block. (The SDI audio signal is extracted at the audio Rx TBC block.)

This SDI video signal is also sent to the input TBC block on the SDI-23 board.

The input TBC block on the SDI-23 board synchronizes the input video signal (SDI video signal or digital component signal from the DEC-97 board) with the reference block inside this unit.

The input video signal output from the input TBC block is sent to the MD-122 board as REC data via the setup remove and VITC generation blocks.

The VITC generation block reads the VITC and sets data for recording.

The REC data is also sent to the VPR-59 board as EE data (Input E-E video signal).

Playback system

In the VPR-59 board, either the playback video signal sent from the DM-121 board or the input EE video signal sent from the SDI-23 board is selected by video process IC, after which video process (gain adjustment, setup adjustment, addition of blanking, etc.) is performed.

The digital component video signal output from the video process IC is divided into two lines by the composite encode IC, where one is encoded to the digital composite video signals, and the other is input to the SDI-23 board and scan converter IC.

The digital composite video signal output from the composite encode IC is D/A converted, and output from the connector panel (CP-317 board). There are two outputs; Characters can be superimposed to the VIDEO OUTPUT 2.

The digital component video signal sent to the SDI-23 board is multiplexed with the audio signal, parallel/serial converted, and output from the connector panel.

The scan converted signal is further D/A converted, and subject to RGB signal conversion, and gain adjustment in the DP-300 board, and then sent to the color LCD monitor (VGA 640 × 480).

Sync system

Reference internal signals for the video and audio systems are produced in the TG-191 board.

Either the reference video signal input to the REF.VIDEO connector or the video signal input to the VIDEO IN connector is sent to the timing generation block on the TG-191 board from the CP-317 board.

In the timing generation block, sync and burst signals are separated and extracted from the input video signal. Sync signals (HD, VD, and CF) are extracted from the SDI signal input to the SDI INPUT connector by the SDI decode block on the SDI-23 board.

On the TG-191 board, reference internal signals, timing signals (HD, VD, FRAME, and CF), and clocks (for video and audio) synchronized with this reference signal are produced based on the extracted sync signals. These signals and clocks are then sent to each board.

The reference signal (SV REF) for the servo system is also produced by the timing generation block on the TG-191 board and sent to the SV-206 board.

(2) Audio Signal Processing System (CP-316, APR-42, SDI-23, AFM-16, AU-262, HP-88)

Recording system

The analog audio signals (CH1 and CH2) input to the AUDIO INPUT connectors (on the CP-316 board) is input by the CP-316 board and sent to the APR-42 board. In the CP-316 board, the Phantom power is supplied only for overseas models.

The SDI signal input to the SDI INPUT connector is sent to the SDI-23 board, and serial/parallel converted. After the SDI audio signal is extracted by the audio Rx TBC block, the SDI audio signal is converted to serial, and sent to the APR-42 board.

In the APR-42 board, the SDI input audio signal sent from the SDI-23 board is D/A converted, switched with the analog input signal sent from the CP-316 board, channel switched, channel mixed, and level controlled, etc. Then, the CH-1 and CH-2 audio signals are sent to the AU-262 board while the CH-3 and CH-4 audio signals are sent to the AFM-16 board.

The audio signals (CH-1/CH-2) input to the AU-262 board are subject to DOLBY NR processing and waveform equalization after passing through the AGC/limiter circuit. They are then superimposed with the bias signal, and recorded on tape as the longitudinal audio signal. On the other hand the audio signals (CH-3/CH-4) input to the AFM-16 board are passed through the limiter circuit after NR processing, and then FM modulated. They are then sent to the RP-107 board as the AFM RF signal.

Playback system

The longitudinal audio signals (CH-1/CH-2) play backed by the AT head are waveform equalized and DOLBY NR processed in the AU-262 board, and then level-controlled by the AFM-16 board.

The C RF signals sent from the RP-107 board is subject to AGC in the AU-262 board, and after only the AFM audio signals (CH-3/CH-4) are demodulated, NR processing and level control are performed.

The longitudinal audio signals and AFM audio signals which are level-controlled are sent to the APR-42 board. After the audio channel signals for line output and monitor output are selected, they are sent to the CP-316 board, and output from the connector panel via the 600 Ω driver. The audio signal for monitor output can be monitored by the headphones or speaker inside the unit.

The longitudinal audio signal and AFM audio signal sent to the APR-42 board are A/D converted, sent to the SDI-23 board, and multiplexed with the video data by the SDI encoder. They are then parallel/serial converted, and output from the SDI OUT connectors on the connector panel as the SDI signal.

(3) RF Signal Processing System (MD-122, RP-107, DM-121, Drum)

Recording system

The external video signals sent from the SDI-23 board are input to the MD-122 board, and demultiplexed with the Y, R-Y, and B-Y signals. The Y signal is directly D/A converted. The R-Y and B-Y signals are time-compressed by the CTDM IC, and D/A converted as the C signal. This Y and C (CTDM) signals are added with the sync signal, setup, CF ID, etc., modulated to the RF signals at the modulators, and sent to the RP-107 board.

The Y RF signal and C RF signal input to the RP-107 board are passed through the REC amplifier, and sent to the drum.

At this time, the AFM RF signals sent from the AFM-16 board are superimposed with the C RF signals.

The RF signals passed through the rotary transformer in the drum are recorded on the tape by the recording heads.

Playback system

The playback outputs of each head are amplified by the preamplifier in the drum, and input to the RP-107 board via the rotary transformer. The RF signal inputs are switched by the switching pulses and head select signals, and sent to the DM-121 board. However, the C RF signal is also sent to the AFM-16 board because it contains the AFM RF signal.

The RF signals (Y and C) sent to the DM-121 board are each phase equalized and amplitude equalized, and A/D converted after FM de-modulation. They are then time compensated by the line memory.

The Y and C (R-Y/B-Y) signal data read from the line memory is dropout-compensated by the DOC block and noise-reduced by the ENR block. Moreover, the R-Y/B-Y signal data is LCC (line crawl cancel-processed) and sent to the MPX block.

The Y, R-Y, and B-Y signals input to the MPX block are converted to the D1 format. The converted signals are then passed through the setup remove block and sent to the VPR-59 board as playback video signals.

In the setup remove block, the setup is removed for only the NTSC system (525/60 mode).

(4) System Control Block and Servo Block (SY-272, SV-206)

This unit mounts a SYS CPU for system control and a SERVO CPU for servo control.

The RISC CPU is used for the SYS CPU (IC108/SY-272). The operation clock is 20 MHz.

The SYS CPU controls the operations below.

- Control of switches and LEDs on the control panel.
- Receives and transmits signals with the external control equipment
- Sub-LCD display
- Superimposing of characters on the monitor output and LCD monitor.
- Control of main boards
- Self-diagnosis of main boards
- LTC signal read and write

A 16-bit CPU is used for the SERVO CPU, and the operation clock is 10 MHz.

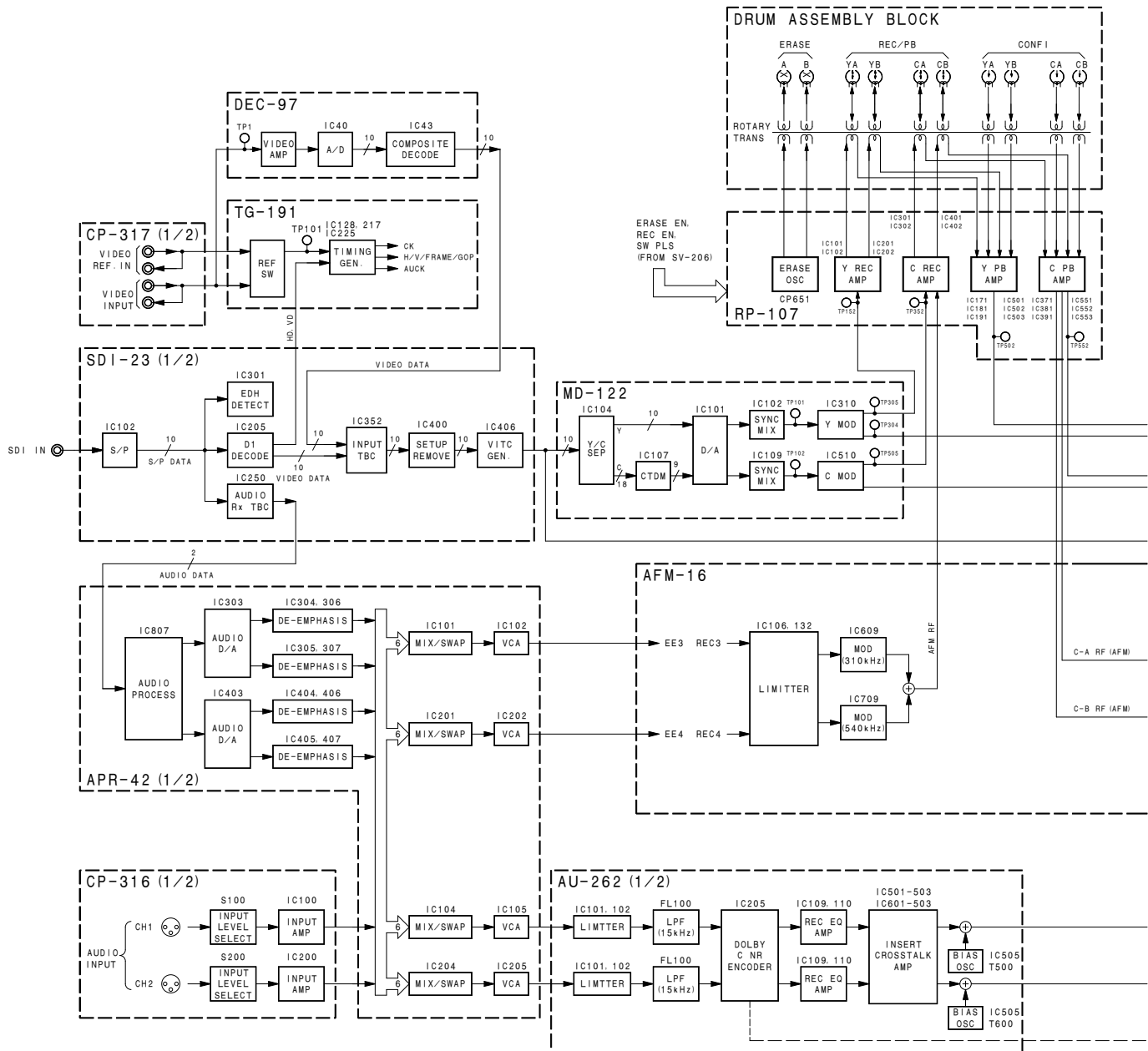
The SERVO CPU controls the operations below.

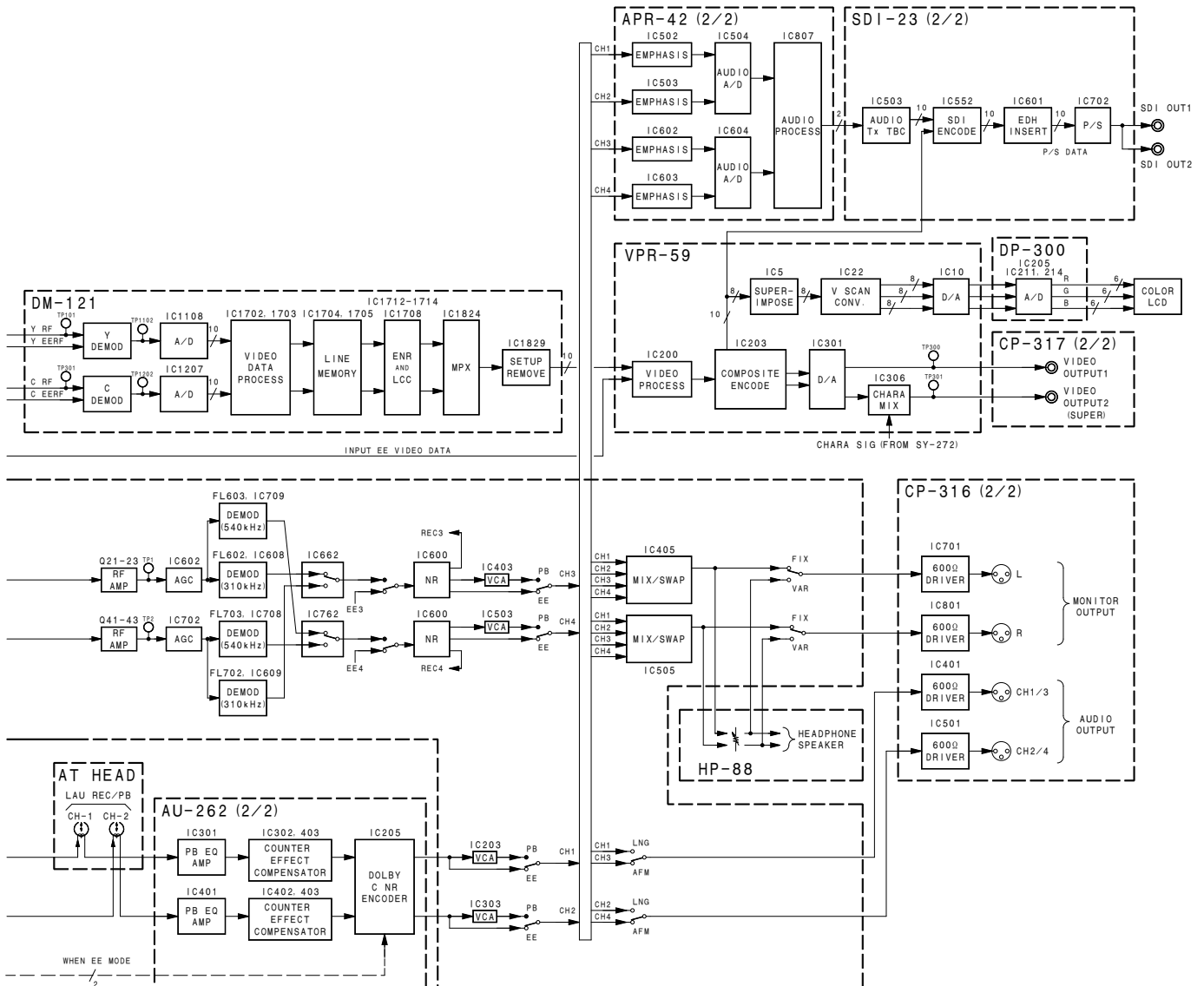
- Control of drum and motors
- Detection of sensors and FG/PG

The communication between the SYS CPU and the SERVO CPU are performed via the DUAL PORT RAM (IC300).

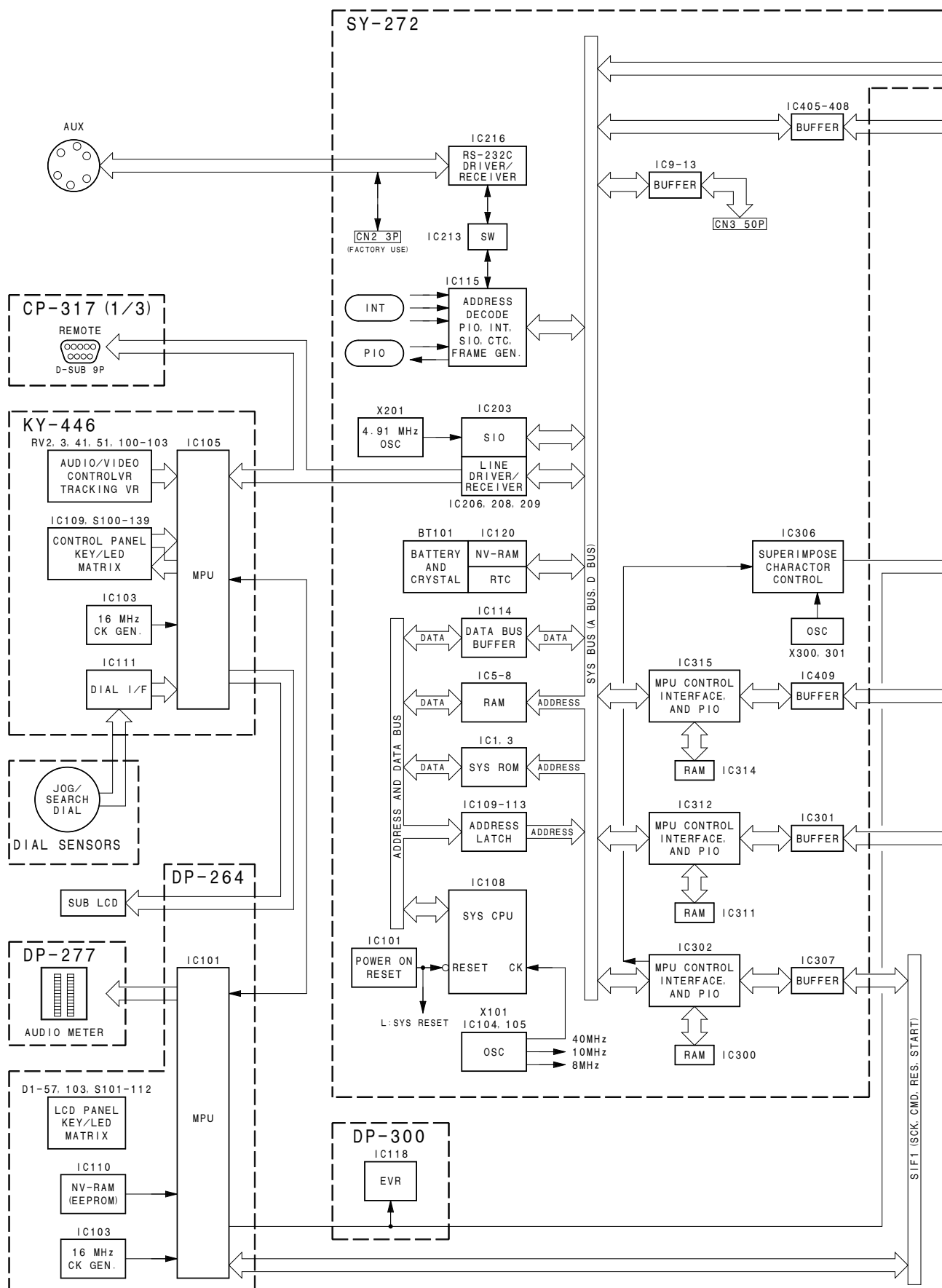
(5) Power Supply Block (RE-174, PSW-63)

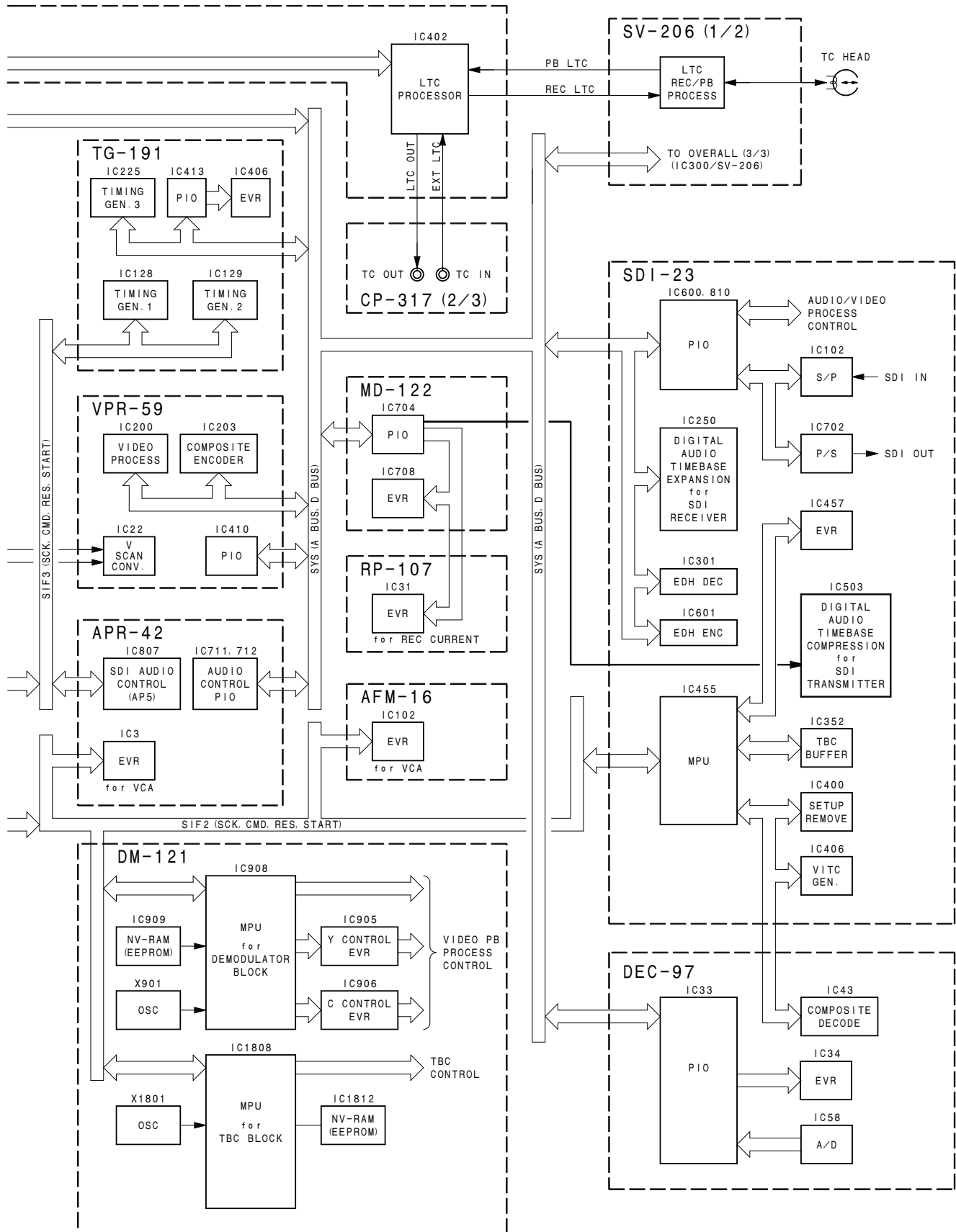
The +12V DC voltage input from the battery or DC IN connector is sent to the RE-174 board. The voltage is then turned on and off using the power switch on the PSW-63 board and sent to each board as an UNREG +12V. Moreover, various DC voltage are generated using the DC-DC converter based on the synchronous PWM switching regulator and supplied to each board.





SIGNAL PROCESSING SYSTEM
OVERALL (1/3)
BVW-55

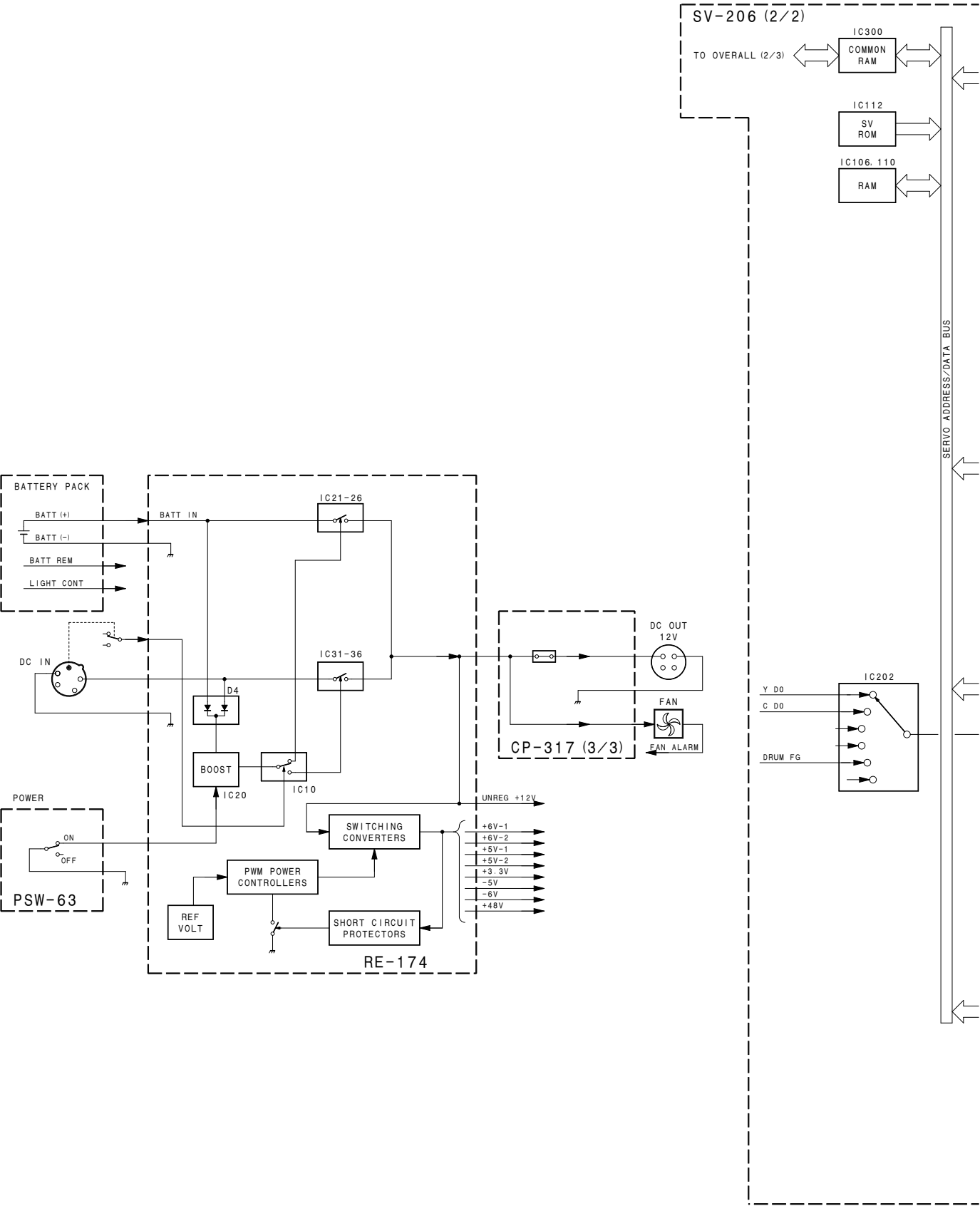


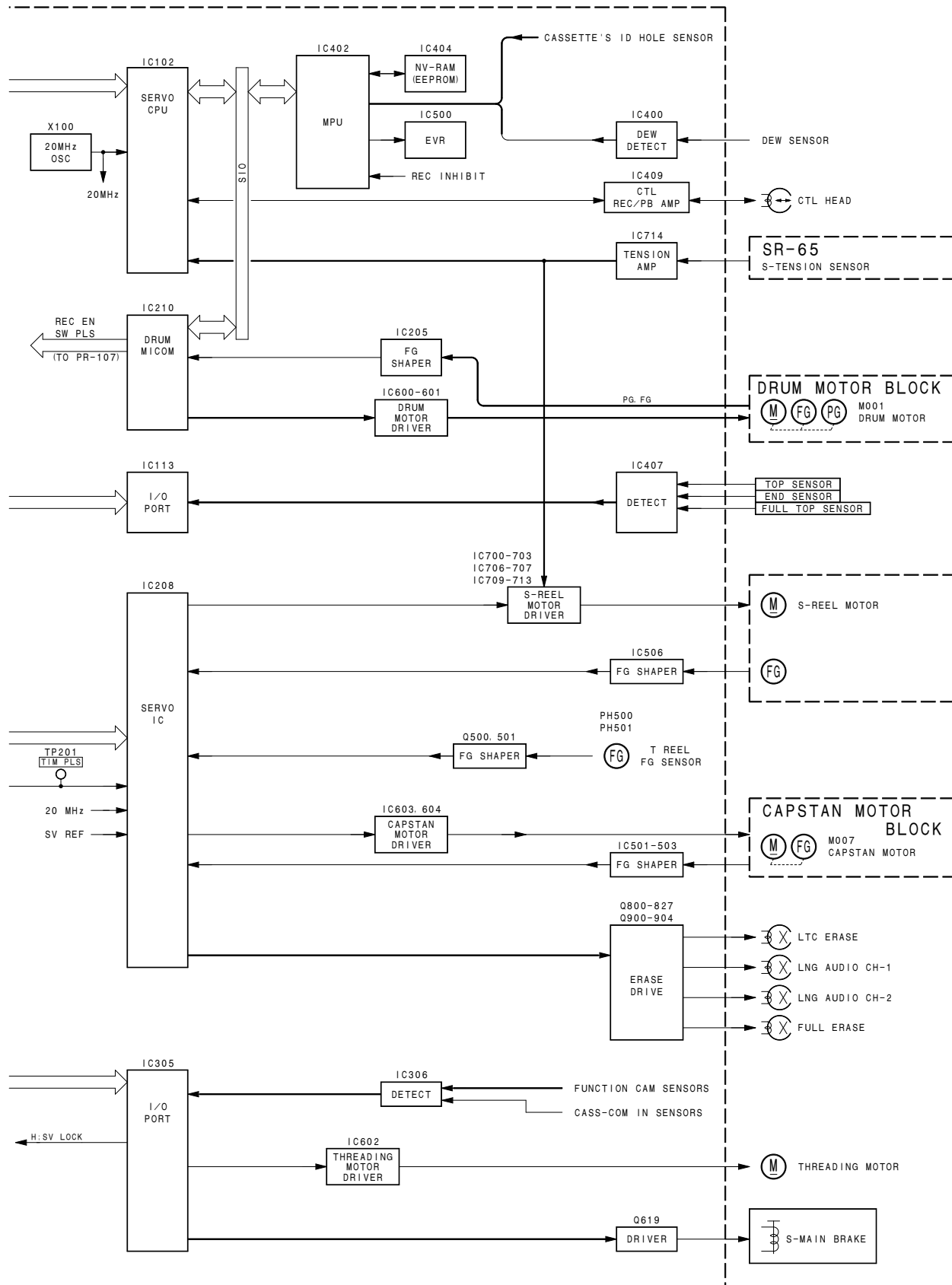


SERVOSYSTEM CONTROL SYSTEM (1/2)

OVERALL (2/3)

BVW-55







Appendix A

Setting Check Sheet

It is recommended to make a photocopy of check sheets given in this appendix and write down setup conditions such as switches' setting in the check sheets according to application.

If setup conditions are noted, the settings can be returned easily to its original condition after being changed temporarily (when operating condition changes and so on).

And when the unit is to be checked, maintained or repaired, please attach the filled-in check sheets to the unit.

If system combinations are frequently changed according to use, it is convenient to prepare check sheets for every system. Make use of the check sheets to avoid mistakes.

Model name: BVW-55 Serial No.: _____

- Firmware

SYS (SY A) ROM version: _____

(SY B) ROM version: _____

SV1 ROM version: _____

KY ROM version: _____

- Hours meter

Write down readings of hours meter when checking, servicing or maintaining the unit.

ITEM	Date	Hours meter
H01: OPERATION HOURS	/	
H02: DRUM RUNNING HOURS	/	
H03: TAPE RUNNING HOURS	/	
H04: THREADING COUNTER	/	
H12: DRUM RUNNING HOURS(Resettable)	/	
H13: TAPE RUNNING HOURS(Resettable)	/	
H14: THREADING COUNTER(Resettable)	/	

Connector panel

Switch		Factory setting	Setting		
Analog audio input level	CH-1	+4 dBu	☐ -60	☐ 0	☐ +4
	CH-2	+4 dBu	☐ -60	☐ 0	☐ +4
48V (at -60 dBu input level setting)	CH-1	OFF	☐ OFF	☐ ON	
	CH-2	OFF	☐ OFF	☐ ON	
Reference video input 75 Ω		ON	☐ ON	☐ OFF	
Composite video input 75 Ω		ON	☐ ON	☐ OFF	

Control panel

Switch		Factory setting	Setting	
REC/INHIBIT		OFF	☐ ON	☐ OFF
LOCAL/REMOTE		LOCAL	☐ LOCAL	☐ REMOTE
TC GENERATOR		INT	☐ INT	☐ EXT
		PRESET	☐ PRESET	☐ REGEN
		F-RUN	☐ F-RUN	☐ R-RUN
PB /PB/EE		PB	☐ PB	☐ PB/EE
METER AUDIO/RF		AUDIO (CH-1/2)	☐ AUDIO (☐ CH-1/2	☐ RF ☐ CH-3/4)
AUDIO INPUT		PRESET	☐ PRESET	☐ VARIABLE
PB AUDIO		PRESET	☐ PRESET	☐ VARIABLE

Internal Slit-lands

Board	Name	Channel	Ref. No.	Factory setting	Setting
APR-42	SDI Audio input headroom	CH-1	SL300 SL301	OPEN (20 dB) OPEN	
		CH-2	SL302 SL303	OPEN (20 dB) OPEN	
		CH-3	SL400 SL401	OPEN (20 dB) OPEN	
		CH-4	SL402 SL403	OPEN (20 dB) OPEN	
	SDI Audio output headroom	CH-1	SL500 SL501	OPEN (20 dB) OPEN	
		CH-2	SL502 SL503	OPEN (20 dB) OPEN	
		CH-3	SL600 SL601	OPEN (20 dB) OPEN	
		CH-4	SL602 SL603	OPEN (20 dB) OPEN	
RE-174	Power select		SL1	OPEN	

Internal Switches

Note Never change setting of factory-use switches.

Board	Switch No.	Name	Factory setting	Setting
AFM-16	S701	1 : AFM CARRIER MUTE	OFF (OPEN)	
		2 : Factory use	OFF (OPEN)	—
AU-262	S300	1 - 2 : CH1 HEAD TUNE Switch	Used during adjustment	—
	S400	1 - 2 : CH2 HEAD TUNE Switch	Used during adjustment	—
	S881	1 - 2 : Factory use	OFF (OPEN)	—
DM-121	S101	: Y EQ TEST	NORMAL POSITION	—
	S301	: C EQ TEST	NORMAL POSITION	—
	S501	: Factory use	ON	—
	S901	1 : RF adjusting switch	OFF (OPEN)	—
		2 : Factory use	OFF (OPEN)	—
		3 : AGC OFF	OFF (OPEN)	—
		4 : Factory use	OFF (OPEN)	—
	S1701	1 : Y MUTE	OFF (OPEN)	
		2 - 3 : Factory use	OFF (OPEN)	—
		4 : C MUTE	OFF (OPEN)	
		5 : COMB	OFF (OPEN)	
		6 - 8 : Factory use	OFF (OPEN)	—
	S1801	1 : D CLP OFF	OFF (OPEN)	
		2 - 4 : Factory use	OFF (OPEN)	—
MD-122	S101	: Factory use	ON (CLOSE)	—
	S102	: Factory use	ON (CLOSE)	—
	S301	1 : NON LINEAR EMPHASIS	OFF (OPEN)	
		2 : TEST	OFF (OPEN)	
RP-107	S101	: YA REC	ON (CLOSE)	
	S151	: Factory use	ON (CLOSE)	—
	S201	: YB REC	ON (CLOSE)	
	S301	: CA REC	ON (CLOSE)	
	S401	: CB REC	ON (CLOSE)	
SV-206	S100	1*1 : CASSETTE COMPARTMENT LOCK	OFF (OPEN)	—
		2*2 : SERVO ERR NOT DET	OFF (OPEN)	—
		3 - 6 : Factory use	OFF (OPEN)	—
SY-272	S202	1 : EXTENDED MENU	OFF (OPEN)	
		2 : MAINT MODE ACCESS	OFF (OPEN)	
		3 - 6 : Factory use	OFF (OPEN)	—
		7 : J/UC	ON (CLOSE)	—
		8 : 525/625	OFF (OPEN)	—

*1, *2: Never change setting of the switches S101-1 and S101-2.

For 525/60 System

The sub LCD menu and the setup menu can store the data for 525/60 and 625/50 systems independently. Then fill out the check sheets for each system, selecting system using the setup menu ITEM-013: 525/625 SYSTEM SELECT.

525/60 system : Pages A-4 to A-10

625/50 system : Pages A-11 to A-17

Some menu items in the check sheets may be added or changed depending on the ROM version. In this case, please write down notes in the margin.

Sub LCD menu

HOME page

ITEM		Factory setting	Setting
AUDIO SETTING BANK	:F1	AU-1	
TIME CODE READER	:F2	AUTO	
VITC	:F3	VITCON	
VIDEO INPUT	:F4	SDI	

Audio setting page 1

ITEM		Factory setting	AU-1	AU-2	AU-3	AU-4
AUDIO INPUT IN-1		SDI-1				
AUDIO INPUT IN-2		SDI-2				
AUDIO INPUT IN-3		SDI-3				
AUDIO INPUT IN-4		SDI-4				
AGC		OFF				
LIMITER		OFF				

Audio setting page 2

ITEM		Factory setting	AU-1	AU-2	AU-3	AU-4
MIX/SWAP	CH-1	IN-1				
	CH-2	IN-2				
	CH-3	IN-3				
	CH-4	IN-4				

Audio setting page 3

ITEM		Factory setting	AU-1	AU-2	AU-3	AU-4
LINE OUT		CH-1/2				
MONITOR LEVEL		FIX				
MONITOR CH	L	CH-1				
	R	CH-2				
EMPH		OFF				
DOLBY		OFF				

Audio setting sub page (MIX/SWP)

ITEM	Factory setting	Setting
IN	MIX OFF	
OUT	L/R=1/2	

Video setting page 1/2

ITEM	Factory setting	Setting
CONFI	OFF	
VIDEO IN (When CMPST is selected as VIDEO INPUT on HOME page)	PRESET	
ZEBRA	OFF	
OUT REF	INPUT	

Video setting page 2/2

ITEM	Factory setting	Setting
PROCESS CONTROL	PANEL	
(When the above item is set to PANEL)	VID SG	BB
	SG	OFF
	Y/C DLY	800 PRESET
	SYNC PH	80
	SC PH	200

General setting page

ITEM	Factory setting	Setting
SUPER	ALL	
CAPSTAN	4F	
DF (valid only in 525/60 system)	DF	
BACKLGT	NORMAL	
KEY INH	OFF	
BAT-END	10.5	
BAT-NE	11.0	
LIGHTSW	SUB	

Set up menu

Note When Banks 1 to 4 menu is recalled, the current menu will be overwritten.
Be sure to write down the current menu settings first, before recalling Banks 1 to 4. Then write down the Banks' settings.

Main menu

ITEM-000 series: Operational parameter

ITEM	Factory setting	Current	Bank 1	Bank 2	Bank 3	Bank 4
001: PREROLL TIME	5S					
002: CHARACTER H-POSITION	14					
003: CHARACTER V-POSITION	56					
004: SYNCHRONIZE	ON					
005: DISPLAY INFORMATION SELECT	T&STA					
006: LOCAL FUNCTION ENABLE	ST&EJ					
007: TAPE TIMER DISPLAY	+–12H					
008: MONITORING SELECTION FOR VTR-TO-VTR EDIT	MANU					
009: CHARACTER TYPE	WHITE					
011: CHARACTER V-SIZE	×1					
013*1: 525/625 SYSTEM SELECT	OFF	–	–	–	–	–
014: SEQUENTIAL RECORD MODE	OFF					

*1: ITEM-013 has no relation with Banks.

ITEM-B00 series: Menu bank parameter

It is unnecessary to write down the setting for this series.
Each item of B00 series is set to OFF in the normal state. Set to ON only when executing each item.
After execution, each item returns to OFF automatically.

Extended menu

ITEM-100 series: Operational panel parameter

ITEM	Factory setting	Current	Bank 1	Bank 2	Bank 3	Bank 4
101: SELECTION FOR SEARCH DIAL ENABLE	DIAL					
105: REFERENCE SYSTEM ALARM	OFF					
106: CAPSTAN LOCK	SW					
107: REC INHIBIT LAMP FLASHING	OFF					
108: AUTO EE SELECT	S/F/R					
109: FORCED EE WHEN TAPE UNTHREAD	ON					
118: KEY INHIBIT SWITCH EFFECTIVE AREA						
SUB-ITEM REMOTE SELECT	DIS					
CONTROL PANEL	DIS					
119: VARIABLE SPEED LIMIT IN KEY PANEL CONTROL	OFF					
120: CTL LOCK IN VAR/SHTL	ON					

ITEM-200 series: Remote interface parameter

ITEM	Factory setting	Current	Bank 1	Bank 2	Bank 3	Bank 4
201: PARA RUN	DIS					

ITEM-300 series: Editing parameter

ITEM	Factory setting	Current	Bank 1	Bank 2	Bank 3	Bank 4
301: VAR SPEED RANGE FOR SYNCHRONIZATION	~1.5					
302: CAPSTAN RE-LOCKING DIRECTION	DECEL					
305: SYNC GRADE	ACCUR					
306: DMC INITIAL SPEED	MANUAL					
307: AUTO-DELETION FOR INCONSISTENT DATA	MANU					
308: SELECTION OF STD/NON-STD FOR COMPOSITE VIDEO IN	AUTO					
309: SERVO REFERENCE SELECT	AUTO1					
310: REC INHIBIT	ALL					
318: EDIT RETRY	ON					
326: AUTOMATIC IN ENTRY AFTER AUTO EDIT	OFF					

ITEM-400 series: Preroll parameter

ITEM	Factory setting	Current	Bank 1	Bank 2	Bank 3	Bank 4
401: FUNCTION MODE AFTER CUE-UP	STOP					
402: TIME REFERENCE FOR PREROLL	CTL					
403: AUTOMATIC PREROLL REFERENCE ENTRY	DIS					

ITEM-500 series: Tape protection parameter

ITEM	Factory setting	Current	Bank 1	Bank 2	Bank 3	Bank 4
501: STILL TIMER	8M					
502: TAPE PROTECTION MODE FROM SEARCH	STEP					

ITEM-600 series: Time code generator parameter

ITEM	Factory setting	Current	Bank 1	Bank 2	Bank 3	Bank 4
601: VITC POSITION SEL-1	16H					
602: VITC POSITION SEL-2	18H					
603*1: ID CODE PRESET	OFF	—	—	—	—	—
604: ID CODE SW	OFF					
605: TCG REGEN MODE	TC&UB					
606: TC OUTPUT SIGNAL IN REGEN MODE	TAPE					
607: U-BIT BINARY GROUP FLAG	000					
608: PHASE CORRECTION	OFF					
609: TCG CF FLAG	OFF					
610: REGEN CONTROL MODE	AS&IN					

*1: ITEM-603 has no relation with Banks.

ITEM-700 series: Video control parameter

ITEM	Factory setting	Current	Bank 1	Bank 2	Bank 3	Bank 4
701: SELECTION OF VIDEO DELAY/SYNC DELAY	VIDEO					
703: BLANK LINE SELECT						
SUB-ITEM	0: All line	---				
	12: 12 line	BLANK				
	13: 13 line	BLANK				
	14: 14 line	BLANK				
	15: 15 line	BLANK				
	16: 16 line	BLANK				
	17: 17 line	BLANK				
	18: 18 line	BLANK				
	19: 19 line	BLANK				
	20: 20 line	BLANK				
704: DECODE Y/C SEP MODE						
SUB-ITEM	12: 12 line	B&W				
	13: 13 line	B&W				
	14: 14 line	B&W				
	15: 15 line	B&W				
	16: 16 line	B&W				
	17: 17 line	B&W				
	18: 18 line	B&W				
	19: 19 line	B&W				
	20: 20 line	B&W				
	21: 21 line	COMB				
	22: 22 line	COMB				
705: EDGE SUBCARRIER REDUCER MODE	AUTO					
712: VIDEO PROCESS ON CAP LOCK 2FIELD	OFF					
713: VIDEO SETUP REFERENCE LEVEL (valid only in 525/60 system)						
SUB-ITEM	0: MASTER LEVEL	7.5%				
	1: INPUT LEVEL	MSTER				
	2: VBLK REMOVE CNT	THROU				
	3: BETACAM PB LEVEL	MSTER				
	4: OUTPUT LEVEL	MSTER				
714: VIDEO ADJUST RANGE	-3 ~ +3					
715: VIDEO GAIN CONTROL	800H					
716: CHROMA GAIN CONTROL	800H					
717: CHROMA PHASE CONTROL	80H					
718: SETUP LEVEL (valid only in 525/60 system)	110H					
719: SYSTEM PHASE SYNC	80					
720: SYSTEM PHASE SC	0					

ITEM	Factory setting	Current	Bank 1	Bank 2	Bank 3	Bank 4
721: Y/C DELAY	800					
723: INPUT VIDEO BLACK						
SUB-ITEM	0: All line	---				
	12: 12 line	THROU				
	13: 13 line	THROU				
	14: 14 line	THROU				
	15: 15 line	THROU				
	16: 16 line	THROU				
	17: 17 line	THROU				
	18: 18 line	THROU				
	19: 19 line	THROU				
	20: 20 line	THROU				
726: H BLANKING WIDTH	WIDE					
728: OUTPUT SCH PHASE	800H					
731: EE MODE	INPUT					

ITEM-900 series: Digital process parameter

ITEM	Factory setting	Current	Bank 1	Bank 2	Bank 3	Bank 4
912: SEQUENTIAL RECORD INPUT SIGNAL	PARALLEL					



ITEM-F00 series: Adjustment use only

It is unnecessary to reset for normal operation.

Do not change setting of each item from its factory-set position.

ITEM	Factory setting	Current	Bank 1	Bank 2	Bank 3	Bank 4
F01: AUDIO NR IN SP MODE	ON					
F02: EMERGENCY TAPE PROTECTION	ENA					
F16: DEVICE TYPE MODIFY	0					
F21: PROCESS CONT VR	OFF					

For 625/50 System

The sub LCD menu and the setup menu can store the data for 525/60 and 625/50 systems independently. Then fill out the check sheets for each system, selecting system using the setup menu ITEM-013: 525/625 SYSTEM SELECT.

525/60 system : Pages A-4 to A-10

625/50 system : Pages A-11 to A-17

Some menu items in the check sheets may be added or changed depending on the ROM version. In this case, please write down notes in the margin.

Sub LCD menu

HOME page

ITEM		Factory setting	Setting
AUDIO SETTING BANK	:F1	AU-1	
TIME CODE READER	:F2	AUTO	
VITC	:F3	VITCON	
VIDEO INPUT	:F4	SDI	

Audio setting page 1

ITEM		Factory setting	AU-1	AU-2	AU-3	AU-4
AUDIO INPUT IN-1		SDI-1				
AUDIO INPUT IN-2		SDI-2				
AUDIO INPUT IN-3		SDI-3				
AUDIO INPUT IN-4		SDI-4				
AGC		OFF				
LIMITER		OFF				

Audio setting page 2

ITEM		Factory setting	AU-1	AU-2	AU-3	AU-4
MIX/SWAP	CH-1	IN-1				
	CH-2	IN-2				
	CH-3	IN-3				
	CH-4	IN-4				

Audio setting page 3

ITEM		Factory setting	AU-1	AU-2	AU-3	AU-4
LINE OUT		CH-1/2				
MONITOR LEVEL		FIX				
MONITOR CH	L	CH-1				
	R	CH-2				
EMPH		OFF				
DOLBY		OFF				

Audio setting sub page (MIX/SWP)

ITEM	Factory setting	Setting
IN	MIX OFF	
OUT	L/R=1/2	

Video setting page 1/2

ITEM	Factory setting	Setting
CONFI	OFF	
VIDEO IN (When CMPST is selected as VIDEO INPUT on HOME page)	PRESET	
ZEBRA	OFF	
OUT REF	INPUT	

Video setting page 2/2

ITEM	Factory setting	Setting
PROCESS CONTROL	PANEL	
(When the above item is set to PANEL)	VID SG	BB
	SG	OFF
	Y/C DLY	800 PRESET
	SYNC PH	80
	SC PH	200

General setting page

ITEM	Factory setting	Setting
SUPER	ALL	
CAPSTAN	4F	
BACKLGT	NORMAL	
KEY INH	OFF	
BAT-END	10.5	
BAT-NE	11.0	
LIGHTSW	SUB	

Setup menu

Note When Banks 1 to 4 menu is recalled, the current menu will be overwritten.
Be sure to write down the current menu settings first, before recalling Banks 1 to 4. Then write down the Banks' settings.

Main menu

ITEM-000 series: Operational parameter

ITEM	Factory setting	Current	Bank 1	Bank 2	Bank 3	Bank 4
001: PREROLL TIME	5S					
002: CHARACTER H-POSITION	12					
003: CHARACTER V-POSITION	6A					
004: SYNCHRONIZE	ON					
005: DISPLAY INFORMATION SELECT	T&STA					
006: LOCAL FUNCTION ENABLE	ST&EJ					
007: TAPE TIMER DISPLAY	+–12H					
008: MONITORING SELECTION FOR VTR-TO-VTR EDIT	MANU					
009: CHARACTER TYPE	WHITE					
011: CHARACTER V-SIZE	×1					
013*1: 525/625 SYSTEM SELECT	OFF	–	–	–	–	–
014: SEQUENTIAL RECORD MODE	OFF					

*1: ITEM-013 has no relation with Banks.

ITEM-B00 series: Menu bank parameter

It is unnecessary to write down the setting for this series.
Each item of B00 series is set to OFF in the normal state. Set to ON only when executing each item.
After execution, each item returns to OFF automatically.

Extended menu

ITEM-100 series: Operational panel parameter

ITEM	Factory setting	Current	Bank 1	Bank 2	Bank 3	Bank 4
101: SELECTION FOR SEARCH DIAL ENABLE	DIAL					
105: REFERENCE SYSTEM ALARM	OFF					
106: CAPSTAN LOCK	SW					
107: REC INHIBIT LAMP FLASHING	OFF					
108: AUTO EE SELECT	S/F/R					
109: FORCED EE WHEN TAPE UNTHREAD	ON					
118: KEY INHIBIT SWITCH EFFECTIVE AREA						
SUB-ITEM	REMOTE SELECT	DIS				
	CONTROL PANEL	DIS				
119: VARIABLE SPEED LIMIT IN KEY PANEL CONTROL	OFF					
120: CTL LOCK IN VAR/SHTL	ON					

ITEM-200 series: Remote interface parameter

ITEM	Factory setting	Current	Bank 1	Bank 2	Bank 3	Bank 4
201: PARA RUN	DIS					
202: CF FLAG REPLY (valid only in 625/50 system)	8F					

ITEM-300 series: Editing parameter

ITEM	Factory setting	Current	Bank 1	Bank 2	Bank 3	Bank 4
301: VAR SPEED RANGE FOR SYNCHRONIZATION	~1.5					
302: CAPSTAN RE-LOCKING DIRECTION	ACCEL					
305: SYNC GRADE	ACCUR					
306: DMC INITIAL SPEED	MANUAL					
307: AUTO-DELETION FOR INCONSISTENT DATA	MANU					
308: SELECTION OF STD/NON-STD FOR COMPOSITE VIDEO IN	AUTO					
309: SERVO REFERENCE SELECT	AUTO1					
310: REC INHIBIT	ALL					
318: EDIT RETRY	ON					
326: AUTOMATIC IN ENTRY AFTER AUTO EDIT	OFF					

ITEM-400 series: Preroll parameter

ITEM	Factory setting	Current	Bank 1	Bank 2	Bank 3	Bank 4
401: FUNCTION MODE AFTER CUE-UP	STOP					
402: TIME REFERENCE FOR PREROLL	CTL					
403: AUTOMATIC PREROLL REFERENCE ENTRY	DIS					

ITEM-500 series: Tape protection parameter

ITEM	Factory setting	Current	Bank 1	Bank 2	Bank 3	Bank 4
501: STILL TIMER	8M					
502: TAPE PROTECTION MODE FROM SEARCH	STEP					

ITEM-600 series: Time code generator parameter

ITEM	Factory setting	Current	Bank 1	Bank 2	Bank 3	Bank 4
601: VITC POSITION SEL-1	19H					
602: VITC POSITION SEL-2	21H					
603*1: ID CODE PRESET	OFF	—	—	—	—	—
604: ID CODE SW	OFF					
605: TCG REGEN MODE	TC&UB					
606: TC OUTPUT SIGNAL IN REGEN MODE	TAPE					
607: U-BIT BINARY GROUP FLAG	000					
608: PHASE CORRECTION	OFF					
609: TCG CF FLAG	OFF					
610: REGEN CONTROL MODE	AS&IN					

*1: ITEM-603 has no relation with Banks.

ITEM-700 series: Video control parameter

ITEM		Factory setting	Current	Bank 1	Bank 2	Bank 3	Bank 4
701: SELECTION OF VIDEO DELAY/SYNC DELAY		VIDEO					
703: BLANK LINE SELECT							
SUB-ITEM	0: All line	---					
	9: 9,322 line	BLANK					
	10: 10,323 line	BLANK					
	11: 11,324 line	BLANK					
	12: 12,325 line	BLANK					
	13: 13,326 line	BLANK					
	14: 14,327 line	BLANK					
	15: 15,328 line	BLANK					
	16: 16,329 line	BLANK					
	17: 17,330 line	BLANK					
	18: 18,331 line	BLANK					
	19: 19,332 line	BLANK					
	20: 20,333 line	BLANK					
	21: 21,334 line	BLANK					
	22: 22,335 line	BLANK					
	23: 23 line	HALF					
704: DECODE Y/C SEP MODE							
SUB-ITEM	9: 9,322 line	B&W					
	10: 10,323 line	B&W					
	11: 11,324 line	B&W					
	12: 12,325 line	B&W					
	13: 13,326 line	B&W					
	14: 14,327 line	B&W					
	15: 15,328 line	B&W					
	16: 16,329 line	B&W					
	17: 17,330 line	B&W					
	18: 18,331 line	B&W					
	19: 19,332 line	B&W					
	20: 20,333 line	B&W					
	21: 21,334 line	B&W					
	22: 22,335 line	B&W					
705: EDGE SUBCARRIER REDUCER MODE		AUTO					
712: VIDEO PROCESS ON CAP LOCK 2FIELD		OFF					
714: VIDEO ADJUST RANGE		-3 ~ +3					
715: VIDEO GAIN CONTROL		800H					
716: CHROMA GAIN CONTROL		800H					
717: CHROMA PHASE CONTROL		80H					
719: SYSTEM PHASE SYNC		80					
720: SYSTEM PHASE SC		0					

ITEM	Factory setting	Current	Bank 1	Bank 2	Bank 3	Bank 4
721: Y/C DELAY	800					
723: INPUT VIDEO BLACK						
SUB-ITEM	0: All line	---				
	9: 9,322 line	THROU				
	10: 10,323 line	THROU				
	11: 11,324 line	THROU				
	12: 12,325 line	THROU				
	13: 13,326 line	THROU				
	14: 14,327 line	THROU				
	15: 15,328 line	THROU				
	16: 16,329 line	THROU				
	17: 17,330 line	THROU				
	18: 18,331 line	THROU				
	19: 19,332 line	THROU				
	20: 20,333 line	THROU				
	21: 21,334 line	THROU				
	22: 22,335 line	THROU				
726: H BLANKING WIDTH	WIDE					
728: OUTPUT SCH PHASE	800H					
731: EE MODE	INPUT					

ITEM-900 series: Digital process parameter

ITEM	Factory setting	Current	Bank 1	Bank 2	Bank 3	Bank 4
912: SEQUENTIAL RECORD INPUT SIGNAL	PARALLEL					

ITEM-F00 series: Adjustment use only

It is unnecessary to reset for normal operation.

Do not change setting of each item from its factory-set position.

ITEM	Factory setting	Current	Bank 1	Bank 2	Bank 3	Bank 4
F01: AUDIO NR IN SP MODE	ON					
F02: EMERGENCY TAPE PROTECTION	ENA					
F16: DEVICE TYPE MODIFY	0					
F21: PROCESS CONT VR	OFF					

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